Report of

The Maryland Agricultural Society—Maryland Farm Bureau Federation,

INCLUDING REPORTS OF THE

Maryland State Horticultural Society,
Maryland Crop Improvement Association,
Maryland State Dairymen's Association,
Maryland State Beekeepers' Association,
Maryland Vegetable Growers' Association,
Maryland Sheep Growers' Association,
Maryland Tobacco Growers' Association,
Maryland Swine Growers' Association,
Md. Dist., Atlantic Coast Poultry Prod. Ass'n
Home and Community Committee Meeting,
Canning Crop Conference,
Beef Cattle Conference,
4-H Club Conference.

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REPORT OF THE

MARYLAND AGRICULTURAL SOCIETY

THE

MARYLAND FARM BUREAU FEDERATION

INCLUDING THE REPORTS OF

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HOME AND COMMUNITY COMMITTEE MEETING
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4-H CLUB CONFERENCE

VOLUME XI, FOR THE YEAR 1926.

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Vol 11

LETTER OF TRANSMITTAL

To His Excellency, Albert C. Ritchie,

Governor of Maryland.

SIR:

I herewith submit to you, as directed by the Act incorporating the Maryland Agricultural Society, and also the Horticultural Society, this report for the year 1926, which contains a detailed statement of the receipts and expenditures of the Society as approved by the Executive Committee and Advisory Council. It contains the proceedings of the eleventh annual meeting of the Maryland Agricultural Society, Maryland Farm Bureau Federation, and annual meetings of the affiliated associations.

I trust that an inspection of its contents will convince you that the funds appropriated for this purpose have been wisely and judiciously expended.

Respectfully submitted,

M. M. STEWART,
Secretary.

May 1, 1927,

Baltimore, Md.

THE MARYLAND AGRICULTURAL SOCIETY
THE MARYLAND FARM BUREAU FEDERATION

1105 Union Trust Building,

Baltimore, Md.

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1927

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1927

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Maryland District,

Atlantic Coast Poultry Producers' Association

Second Vice-President and Director, F. M. Payne.....Frederick
Director Eastern Shore, H. S. Pigott.....Ridgely

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REPORT

of

ELEVENTH ANNUAL MEETING

of the

Maryland Agricultural Society

THE

Maryland Farm Bureau Federation

BALTIMORE, MARYLAND

JANUARY 5-7, 1927

The eleventh annual meeting of the Maryland Agricultural Society—The Maryland Farm Bureau Federation was convened in the main dining room of the Rennert Hotel, Baltimore, Maryland, on January 5th, at 2.00 o'clock P. M., with the president, Mr. James W. Davis, presiding.

THE PRESIDENT, MR. DAVIS: I believe this mallet (gavel) is all right. Some one said it wasn't big enough, but we have a bigger one if we should want to use it. So you had better be pretty good. We will open our session by singing "America," led by Dr. F. B. Bomberger.

DR. BOMBERGER: We will sing two verses of "America."

THE PRESIDENT, MR. DAVIS: Now we have a gentleman with us who is going to greet us. In looking over the records of the Maryland Agricultural Society I find that in nineteen hundred and fifteen, Mr. Samuel M. Shoemaker was elected President of the Maryland Agricultural Society. I do not mean to say that Mr. Shoemaker needs any introduction to this audience because we all know him, and we know the interest he has taken in agriculture and feel that in Mr. Shoemaker we have a real friend, and Mr. Shoemaker will now extend the greetings to this meeting. (Applause).

GREETINGS

By Samuel M. Shoemaker,
President of the Maryland State Board of Agriculture.

Mr. Chairman, Guests and Fellow Farmers:

It is always gratifying to meet my fellows in trouble but it is especially gratifying to me to meet you when you are doing the one thing that seems to be absolutely essential if we are to get anywhere, and that is bringing your organizations closer together. Your President refers to nineteen hundred and fifteen. At that time federation was deemed necessary by the then existing agricultural organizations and after trying to get several others to accept the presidency, it came to me by default, because the others who seemed better fitted for it declined the honor. I cannot say I regret the work that came with this office, although there was plenty of it. You older men know what followed that federation of the different farm organizations—the entire reorganization of the agricultural affairs of the State. This required some fourteen different acts of the Legislature. The then Governor, Hon. Emerson C. Harrington, was in full sympathy with us and after one or two rather serious sessions with some of the members of the Senate and the House the whole program went through as planned. It may be interesting to know that the man who advised your committee in that reorganization and who took the most intense interest in it, is the present head of the agricultural work of the State of Maryland, Dr. R. A. Pearson. (Applause).

It is only through organization and close coöperation that there seems any reasonable hope for the future of agriculture. Long before nineteen hundred and fifteen we endeavored to get the milk producers of Maryland together. It looked like a hopeless task. We fellows who have to get our heads under the cow twice a day three hundred and sixty-five days in a year don't get much chance to attend meetings. I refer to this for several reasons—one is that milk production is the one industry that has most happily survived the great trials we farmers have been going through.

I understand the banks of the West when approached by a farmer for a loan want to know if he has cows on his place. If he has dairy cows they advance him the money. Now through real coöperation, the Maryland State Dairymen's Association have effected an organization that is today handling over ninety-five per cent. of the milk sold in the City of Baltimore. I am told that there isn't a better milk producers' organization in the United States. Maryland is generally well satisfied when it has the best and we don't take much interest in anything unless it is the best. Now if we men whose heads must be under a cow twice a day three hundred and sixty-five days in the year, find time to get together and organize as closely and as efficiently as that organization, why isn't it possible for every other branch of agriculture to do the same thing? I believe it is. I do not recall the name of the authority who said that coöperation was so working that others could and would gladly work with you. This is true and is a very good thing for us all to bear in mind in the coöperation end of our work.

Now I imagine I should say something about our needs for agriculture. It is not possible to get all we know is needed, for the needs are very great.

We don't any of us like the idea of increased taxes, but I remember once hearing Mr. Carl R. Gray who was and still is president of a railroad, say he was glad to see taxes increased if they were to be spent for the advancement of agriculture. This was rather a new thing to us farmers to hear a railroad man making any such statement. Maryland is not doing all Maryland can and should properly do for agriculture as compared with what is being done in other States. For instance, for every dollar put up by a student of agriculture in the State of Maryland, Maryland puts up sixty-six cents. The next lowest State contribution toward a student in agriculture is one dollar and thirty-four cents. It goes from that on up to twelve or fifteen dollars per student, per student dollar. Now we are obliged to see that the agricultural student is encouraged if agriculture is to hold its own. I am informed those countries that suffered most in the war are today employing the best experts they can possibly find to help their farmers solve their problems and put their agriculture where

it belongs. It is possible that prosperity is based on something besides agriculture. Some of us old fellows have always insisted, however, that it is the foundation of all prosperity. If we are mistaken in this I suppose we will learn shortly what the real foundation is. Certain it is that the American farmer is up against it and every possible help should be given both in the training of the students to carry on the work and in research work in the agricultural problems. That sounds a little pessimistic but we have a great deal to be thankful for and a great deal to be most grateful for and one of these outstanding things is the splendid attitude of the United States Department of Agriculture toward this work in Maryland. I do not know whether the present Secretary is conscious of the fact that for the past ten years there is not a single branch of his Department that has not done everything that could be reasonably expected to help and coöperate with Maryland in every way. I hope that this will be continued. In fact, now that we have a representative in that Department in Dr. A. F. Woods, I feel reasonably sure we will continue to receive just such coöperation.

The Governor and I agree about most things and I agree with his theory fully as to the Federal Government appropriations for various and sundry things. This can be over done but when it comes to agriculture I have never known the Governor to decline to meet funds that the Federal Government has been willing to give us and I am sure he feels as I do about that—that it is right and proper that the Federal government and the State government and everything else should help the farmer in every possible way because we need State, Federal and Divine help! (Applause).

THE PRESIDENT, MR. DAVIS: I will now introduce to you a gentleman who needs no introduction, I think, in farm bureau circles at least, and that is our vice-president, Mr. E. Thomas Massey. (Applause).

RESPONSE TO GREETINGS

BY E. THOMAS MASSEY,
Vice-President, Maryland Farm Bureau Federation.

Mr. President, Ladies and Gentlemen:

Mr. Shoemaker said something about our being in trouble, and that is what our organizations are for, to try and get ourselves out of trouble. I think that one of the essential things that we farmers must do is to know the cost of production. I have talked with a great many farmers this past few months and they all tell me they are losing money on the corn crop, but when I ask them what it cost to produce the corn crop they cannot tell me, and I told them that as business men they cannot go to the public and tell them that they were losing money unless they could prove it. If we want to get cost plus profit, we must know the cost or we won't know how to add the profit. It seems to be too bad that when a farmer raises a few bushels more of corn or wheat or anything else that he produces, the press of the country gets hold of it and broadcasts it and down goes the price, and when he has a large crop he generally gets less out of it than he does out of a small crop. All other great industries have raised their home market level operating behind tariff walls with an intelligent handling of their surplus. It seems to me the farmer has got to do the same thing by coöperative marketing. He should be protected as other industries and have just as efficient handling of the surplus as the other industries and then through our organization and coöperative marketing may be we can get somewhere. I also hope our standard of living on the farm will come back and the business of agriculture equal to industry. I do not know but what the principal duty I am put on the program for is to introduce you to the President, who will now make his annual address. He needs no introduction, but last year there was quite a mix up as to how the President would get started, so I am not going to let the President ask me to introduce him—I am going to introduce him now. (Applause).

PRESIDENT'S ANNUAL ADDRESS

BY J. W. DAVIS,
Rocks, Md.

Ladies and Gentlemen:

I see I am placed on this program in order to make an address. In Harford County where I live if I am on the program for anything at all it is mostly a talk, because they know me well enough to know that is all they will get. I don't think I can deliver an eloquent address but I will try to make a short talk. We have quite a lot of other speakers. Some of them you are certainly all very much interested in hearing and I will not try to take up a great deal of your time, but since I am on the program I will try to do what I can to fill that place. Now when I was placed at the head of this organization a year ago I realized to some extent the problems we had and saw the difficulties to be overcome. In the fall of nineteen hundred and twenty-five the Directors of the Maryland Farm Bureau found that we had nine counties that were due for reorganization or renewing of membership contracts. We put on that campaign to the best of our ability and at considerable expense. The result was not all that we had hoped for so that when we came down to the annual meeting of nineteen hundred and twenty-six our membership was not as large as we had hoped for and consequently our finances were not in as good shape as we would like to have had them. We found we were faced with a debt of about four thousand dollars. Now we have by the strictest economy cut that figure down to fifteen hundred dollars. We are not so badly in debt today and we hope by continuation of that economy program to reduce that amount and give you a balance over on the right side of the ledger. But that remains largely with the county farm bureau people. I think you all realize the benefit of organization and you realize that any organization to be sound and effective must have membership. Now if we don't have the weight in numbers we cannot expect to go to the Legislature and get results, should we think we should have something done for us there. We cannot expect to go there and command much respect if our membership is not large and I think each one of you will realize the things we will have to do to make our membership larger. You will find

that the Rotary Clubs and the Kiwanis Clubs and the Chambers of Commerce in the cities put on a very strenuous campaign in order to increase their membership. They do not limit expense to increase their membership because they realize that if they have large membership they have strength and are able to accomplish the things they set out to accomplish. If we realize that one thing I think we will all go home with the firm determination to increase our membership. We have the material—the farmers at home need to belong to our organization, and I think, no doubt, we all realize that the Farm Bureau in the last four or five years in this State has done a wonderful amount of good but we just cannot mark time. We can not stop where we are because we have started on this course and we have got to do one of two things,—we have got to go forward or if we begin to go backward and slip we will wind up at the bottom of the hill. Now I think we all realize the need of increased membership and we all ought to take that seriously to heart so that when we get back home to our counties we may go with a firm determination to leave nothing undone to increase the membership of our organization, because only through a large membership can we hope to be effective and make progress.

The National Meeting

I was very much impressed at the annual meeting in Chicago. Mr. Massey and Mr. Stewart and Mr. Cohill were delegates to that convention, and we were all very much impressed with the large membership of the farm bureaus they have in those Middle Western States. In fact nearly all the States in the Union were represented there, and according to the rules of the national organization if you have twenty thousand members or more you are entitled to two voting delegates. I noticed some States had as many as four voting delegates which would show a membership in excess of sixty thousand. Do you realize what a membership of sixty thousand in one State can accomplish. Another thing was the smoothness with which the convention was run. Everything went along like a machine. The machinery was in good condition and well oiled and ready to go and when the time came to start a meeting or session it went forward with the character of smoothness that was amazing.

Advertise Our State

There was another thing I noticed there, and I have often thought of it since then. What would happen to Maryland and what would Maryland be in ten years from now if we could boost Maryland like some of the other States are boosted. For instance, California and one or two others who boosted their States. We have more in Maryland to talk about and boast of I believe than they have but we simply take it for granted that everybody knows it and we do not go out and tell it. These fellows went out and talked it. I had a talk with a gentleman from California. Somebody mentioned earthquakes and he said "Earthquakes, why we don't have earthquakes, we are not bothered with earthquakes. They are nothing serious." Why he said the San Francisco disaster was not caused by an earthquake. It was caused by a fire and a little later we came around to a fellow from Arizona who had a very instructive relief map of the Roosevelt Dam. Mr. Massey said why the last time I was out there in Arizona it seemed to be pretty much all desert. "Desert," he said, "There is no desert, that's all good land. All we need is a little water." (Laughter).

If we could only boost our State of Maryland like those fellows did theirs we would have the population here in the next ten years doubled and we would have a very much better market. The farmers now are complaining about not having good markets. I believe we could have a much better market, but there are other things that we have to consider, and as I said my time is not very long and we will now try to take up some other things.

Control of Corn Borer

Now among other things that we learned there, they had a map that showed something that interested me very much. The map showed the spread of the corn borer of which we have perhaps heard something. The corn borer probably has not concerned us, but may eventually concern us greatly because it is rapidly advancing and is already half way across the State of Pennsylvania. They had a chart showing the amount of travel that insect made in each year and also an exhibit of the corn that they had raised in some of the sections that were

infested by that insect. Now I think that it is very important that we should make preparations to combat that pest, and do it soon, and if you had seen the samples of corn, why it is certainly a very different proposition from the corn show we have on in this building. And our dairymen are especially interested because I am afraid it would play havoc with milk production. I do not think we would be troubled with any surplus. You hear a lot about surplus but if the corn borer gets in its work in this State it will take care of the surplus and more besides. So it is a thing that we ought to do something about at this session of the Legislature. Of course I do believe that our Governor and people at Annapolis are on the lookout for these things and that they will do whatever they think best as to the attainment of sufficient funds to face anything of the kind, but it is something that we all need to be interested in. You do not hear much about it and don't realize what the trouble will be when it really gets here.

Taxation

Now to pass on, we have the matter of taxes. We all hear a lot of talk about taxes. I find our biggest tax is our county tax. We have a lot of complaint from the farmers, they are always complaining about taxes. Now our State Farm Bureau tax committee found most of our taxes are county taxes and that is a matter that we have all got to look after locally. Most of our county tax money goes for schools and roads and if we want good roads or good schools we most likely have to pay the bill. The only thing is to see that we get the proper kind of county officials to spend the money and watch the expenses as closely as possible.

Now during the past year in this State we have had an excellent wheat crop. It has not brought the biggest price but it has brought a good price. Our corn crop has not been as good as expected but still it might have been a lot worse.

The tomato crop, for which this State is noted, was not good owing to bad weather and the price has not been good—not large enough to give the farmer a profit. I may say at this time that the Farm Bureau has been doing all it could in the last year to have the tariff increased on imported canned tomatoes. They tell us there are about five million cases of to-

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matoes coming in from Italy, and if these five million cases of tomatoes were kept in Italy we would probably get a better price for our tomatoes. It is very hard for the ordinary farmer to see why a tariff should be put on steel or anything else that is manufactured abroad but that is not put on something like tomatoes. It may be that we should not have a tariff but I rather think we should. (Laughter).

Co-operation of the Counties

Now a few other things I am going to say and I think my time will then be up. We have been going along with the Farm Bureau and I want to say here that in our visits over the counties Mr. Stewart and myself have certainly been received with the glad hand and treated royally and one of the fondest recollections of my whole life when my term is over will be the respect received in those counties. I want to say that some of the members have worked hard and earnestly with us and have done everything that could be done to make a grand success of this organization. Now it all depends finally on the fellows in the counties. If the members in the counties resolve to have a strong farm bureau and push this thing we can make an organization really worth while.

Affiliated Organizations

We have some other organizations I should not close without mentioning. One is the organization that is noted all over this country. I had several fellows say to me at Chicago, "you folks have in your Maryland State Dairymen's Association one of the best co-operative marketing associations in the United States." We felt rather swelled up. Somebody said "how much money have you got in that organization," and I said, "I do not know but the money they get they keep and we can use it when we need it." They thought it was a good thing, and I have always felt that we should keep a strong surplus in the Dairymen's Association treasury. In keeping the surplus we are in a much better condition than we would be if we didn't have any and I hope it will continue to grow and be stronger.

We have another association in this State that has done a mighty big work. In looking over the census reports of 1925 we found there were five counties in this State that have not

been deflated greatly from war-time prices. Someone might say, the Dairymen's Association, but your guess is wrong. They have been deflated somewhat. The census report shows the tobacco counties have not been deflated. The tobacco growers through their Maryland Tobacco Growers' Association have done a wonderful work and I hope they will continue to grow stronger and I am sure the Farm Bureau will co-operate with this organization in every way that we can. While we may be without any real authority we can help. We do not want to run these other associations, we want only to be of some service to them and assist them, and it is our duty to do it and if you will call upon us I think you will find we are ready and willing to deliver the goods.

One other organization, namely the Agricultural Corporation of Maryland. Last year in addition to my other duties I was placed at the head of that organization. I thought I had had enough to do but some others thought differently. We have placed it on a stronger footing and it is going along and doing a good business and we hope to continue and make it of better service to you. I would ask you this, when everything is not going right, do not do like you have heard the fellows do with the Tobacco or Dairyman's Association, go around and cuss and knock the organization. Go to the headquarters or office and get the facts. Don't be a kicker because of false rumors. So far as the Corporation is concerned if you have troubles come into the office and tell them to us and we will try to straighten the matter out for you. I think I have talked long enough and I am going to close thanking you all for your attention. (Applause).

DR. BOMBERGER: We will sing "Farm Bureau, My Farm Bureau, to the tune of "Maryland, My Maryland."

(Whereupon the audience rose and took part in the singing of two verses.)

PRESIDENT DAVIS: It is now my great privilege and pleasure to present the Hon. W. M. Jardine, Secretary of Agriculture.

EXTRACTS FROM ADDRESS OF HON. W. M. JARDINE,

U. S. Secretary of Agriculture

Members and Friends of the Maryland Agricultural Society and Farm Bureau Federation:

I am glad that it is possible for me to be with you today. Maryland is so closely in touch with the National Capital that it offers an unusually good field for intensive study of many of our agricultural problems. Your State University and Agricultural College and Experiment Station are in daily touch with the Department of Agriculture. This is a great advantage to you as well as to us and has enabled us co-operatively to work out some things here in Maryland rather better than elsewhere.

Members of Two Organizations

In the first place I want to congratulate you on your fine spirit of co-operation. This Agricultural Society and Farm Bureau Federation includes in its membership *all* agricultural organizations and societies in the State. It is indeed a *federation* of all agencies for the promotion of agriculture and country life. Here there is the most friendly and intimate co-operation of such organizations as the Grange; the Farm Bureau Federation; the State Horticultural Society; the Crop Improvement Association; the Maryland State Dairymen's Association; the Bee Keepers' Association; the Vegetable Growers' Association; the Sheep Growers' Association; the Tobacco Growers' Association; the Swine Growers' Association; the Atlantic Coast Poultry Producers' Association; Home and Community Clubs; the Federation of Women's Clubs; the Boys' and Girls' 4H Clubs; Canning Crops Conference; Beef Cattle Conference; the State University, including the Agricultural College, the Experiment Station, and Extension Service; the State Board of Agriculture, including the Live Stock Sanitary Service, and the Department of Markets and other agricultural education, promotion, research, regulatory, and business agencies, and State and city Boards of Health; and the United States Department of Agriculture.

Co-operative Effort

When I say co-operation I do not mean simply co-operation in name, but real active working together with the common purpose of reduction of waste, improvement of methods, reduction of costs of production and distribution which results in increased profit to the producer and the distributor and better quality at lower average cost to the consumer.

Some people wonder how this is possible, but as you who are actually doing it know, the answer is co-operation to secure *elimination of waste; high quality product,* which is always in demand at a premium, *orderly marketing,* to insure high and uniform quality; reduction of overhead costs. The benefits of these savings are distributed to all.

Some of your organizations have been more successful than others in the degree to which they have accomplished these results.

Probably the reason for less success in some organizations is due here as it is elsewhere to less wholehearted, intelligent co-operation on the part of the producers of the community which that particular association handles.

The first principle of co-operation is working together intelligently as a unit. Members cannot be in today and out tomorrow or only nominally in. Thy must study and plan this business together. They must know what the market demands and must find and follow the best ways to produce and deliver what the market wants. They must produce a sufficient volume of high-grade product to reasonably supply their market demand without creating too great a surplus. They must find means of utilizing unavoidable surpluses and lower-grade products in salable by-products. Some of your organizations are doing this very successfully, and you are attracting national attention as a result of your accomplishments.

Efficiency and Quality Production

It will be a long time however, before we shall have generally 100 per cent, or even 50 per cent. real co-operation. Frequently in the early stages of organization, the non-co-operators are benefited as much as those who co-operate, but this should not discourage the co-operators. The non-co-operator as a rule can not continue to compete with *quality.*

When an association has established a reputation for stadards, grades, volume, and reliability the non-co-operator can not long compete.

In my last report I have laid special stress on co-operation and collective action along these lines. I believe that it is the way for the American farmer to efficiently conduct and control his own business. As I pointed out in that report, "it should be remembered that increasing efficiency in production will not by itself result in permanently improved income from agriculture as a whole. If farmers in general let lower costs and temporarily larger returns encourage them to increase the total volume of their production too much they will drive down prices as fast as they reduce their production costs." It is only through organized co-operative effort that we can gauge market requirements and plan intelligently to meet them. Even then there will be fluctuations from causes beyond our control, but if we are organized for purposes of orderly production and marketing we can handle these surpluses so that they will not have an undue effect upon stabilized markets.

Besides organization, however, there are certain other aids that we must have.

In the first place we must know as accurately as possible *the facts* regarding market conditions throughout the world. These the Government undertakes to furnish. We must then as nearly as possible estimate probable needs and demands for each product and each market. The Government aids materially in doing this. Then this information must get to the producers in time to enable them to make their plans based on this information. This the Government is also undertaking to do in co-operation with other agencies by radio, leased wires, the press, county agents, co-operative associations, and other organizations and agencies.

The research Bureaus and Extension Services of the Department and the State Colleges supply much-needed information and help the regulatory and service branches of the Department and the State agencies render much assistance and aid in maintaining recognition for quality.

Supplemental Credit Needed

Credit facilities for agriculture have been greatly improved by recent legislation. As I pointed out in my report, "If we are to give particular attention to centralized co-operative effort even present credit facilities may not be sufficient. Co-operative associations are not able to obtain sufficient cash advances on their products to enable them to practice orderly marketing in a complete sense. At the best they can only obtain 65 to 75 per cent. of the going market price of their products, and there are thousands of farmers who can not operate on this basis, for their current expenses demand more nearly the market price at the time the crops are harvested. For the same reason many of them cannot join a co-operative association.

If additional funds were available to make advances to co-operative associations in addition to credit available from existing agencies, they could make liberal payment to members at the time the products were delivered and their power to regulate the movement of products into consumption channels would be greatly enhanced. It would be possible for them to carry surplus production from one season to another. The individual farmer would have the money for his products, but would not lose control over them.

Stabilized Prices and Production

This is a very different thing from price manipulation. Studies made by the Department show that over a relatively few years the production and market requirements of most farm products are in fair balance. This indicates that a program of orderly marketing, with resultant stabilized prices, is easily within the realm of possibilities. Such a program would not menace the interests of consumers but would contribute materially toward the general stability of supply and markets."

As I pointed out further in my report, "the fact should be emphasized that no hardship to the consuming public is caused by a program of stabilized prices. Periodic and seasonal depressions with prices of farm products are not reflected in corresponding declines in prices to consumers, but they play havoc with the agricultural industry. A sound program of

price stabilization would guarantee an even flow of products to the consumer at fair prices. It would thus benefit both the producer and the consumer.

Agriculture does not lend itself to monopolies or to improper price manipulation. Attempts have sometimes been made by agricultural organizations to exact prices out of line with basic supply and demand conditions. The result has invariably been unfortunate for the authors of the plan. Efforts at price stabilization in harmony with supply and demand conditions, on the other hand, are quite generally successful. Organization of farmers in co-operative associations formed on a community basis seems to me the best way to stabilize prices."

Division of Co-operative Marketing

The time at my disposal will not permit me at present to enter further into the presentation of the various important aspects of co-operative marketing. Congress has established a division of co-operative marketing in the Bureau of Agricultural Economics. The bill establishing this division was adopted after conferences with co-operative leaders representing all commodities and all sections of the country. It is designed to enable the Department of Agriculture to conduct research studies and furnish service which will aid in the development of the co-operative movement. Research designed to test existing business and marketing methods, education in the principles and practices of co-operation, and such service to the co-operatives as can be rendered by a fact-finding agency are the objectives of the new division. This Division has already undertaken the study of the co-operative marketing of cotton, grain, live-stock, fluid milk, and fruits and vegetables.

It is through such organizations as yours that all of these questions must be considered and solutions worked out. Nothing must be done which will take control of the farmers' business out of his own hands, but such assistance and protection must be given to him as will enable him to conduct the business of production and distribution as efficiently as other industries are able to conduct their business.

THE CHAIRMAN: Now I am going to call on Dr. Woods to say a few words to us.

ADDRESS BY DR. A. F. WOODS,

U. S. Department of Agriculture

Mr. Chairman, Ladies and Gentlemen:

We are due, Ladies and Gentlemen, to leave in five minutes for an appointment in Washington, so I won't take very much of your time. I think, however, that this is about the 10th consecutive time that I have stood before this convention and I hope to be able again to be here and meet you every year, because this group of men and women, co-operating for the improvement of the home life and the agricultural methods in general in the State of Maryland is one of the most effective groups that I have ever had the pleasure of working with.

It is one of the things that is necessary for a bettering of the conditions of the farm people. Many other organizations have lately been moving along on those same lines and considering the various problems connected with the marketing proposition, not only on marketing but on production as well. You have been working on the production end of it, as well, and you are making progress, because everyone of you is making criticism of these conditions more intelligently, and when you begin to criticise, you grow.

Sometimes we think that that critical attitude is an evidence of weakness, but I think that it is an evidence of strength.

Because when you let things slide and pay no attention to them then an organization never gets anywhere, but when you begin to realize the way a thing should be done and recognize and adopt that way rather than the way you are doing it, you are then going to get to the point where by constructive criticism you are going to strengthen your organization and year by year these organizations are growing stronger and stronger, for that very reason.

That is along the same line of what President Davis said —there is a tendency, increasing, to criticise in regard to this farm bureau work but you make the mistake of not coming into the organization meetings and doing your criticising. You criticise the work at your grange meetings and local farm bureau meetings. There is where you detail your complaints and criticisms. But let me tell you, Mr. President, even that spirit shows that there are those who are really interested in building up a better agriculture and a better business situa-

tion. That shows that there are those who will put the poorest apples on top and the best ones in the bottom. That is the spirit that is going to win and that is the reason why this progress is evidenced in Maryland.

There is just one other thing we must remember in connection with all these organizations; they must be federated. That federating program must go on until you include in your list all the agricultural interests in your state and in your nation; perhaps you may even have to go further and federate with some of the foreign co-operatives. When your time comes to do that you can do so through your international institute of agriculture. The machinery is organized and is being made more and more effective for an international study of these problems of agriculture, and country life. It is important because everybody is affected by agricultural conditions. It is an industry upon which all other industries depend. When agriculture stops, all industry stops.

We must cultivate the ideal of efficiency in organization, interest and co-operative effort and the federation of all the interests together on a committee which is carrying on business with service as their ideal. (Applause)

PRESIDENT DAVIS: This is an afternoon of real treats! We have with us this afternoon one of the National Directors of our Federation and he is also an officer of the Ohio Wool Growers' Association—Mr. L. B. Palmer.

ACTIVITIES OF FARM BUREAU ASSETS IN ACQUIRING MEMBERSHIP

MR. L. B. PALMER,
President, Ohio Farm Bureau Federation,
Director, American Farm Bureau Federation

Ladies and Gentlemen:

I am sure I thank you for this opportunity but I know the pleasure is more mine than yours. I suspected it and now I *know* that it is. It is a great pleasure indeed for me to be here, with you, and I feel very much that anything that I might attempt to say after such a fine talk and hearing so many good things given out to you, at this time, is really

more or less of an imposition on your good nature because I feel that with the words from your Secretary and the excellent talks from your speakers you have already got enough to make a good, rounded program.

Mr. Chairman, I feel on this occasion very much in the same way as I did in Chicago in regard to the things that I might say in this regard. I feel that the remarks I make may not be all along the line that you have heard here this afternoon. I may have to refer to my tailor-made outline. I want my speech to be just as modern and up-to-date as the costume the flapper and the near flapper wears when she goes out on her parties, etc.—long enough to cover the subject, but short enough to be interesting! (Laughter and applause)

I mean that particularly in this way, because by looking on the program I find it is time for me to quit before I begin, and oftentimes if speakers would observe that more closely it would be some relief! I realize the significance of that oft-times and think, "What a bad thing it is for the other fellow not to know when to quit!"

So the things that I am going to talk to you about, first, have to do with farm organization. In this enterprise we are sailing on an entirely uncharted sea and we recognize fully the task before us. I need not enumerate the undertakings that I know that you folks are confronted with in this state. For instance there are the problems of getting this organization started and functioning so that it will work as it should. When we started out we knew the job that was ahead of us but we started out knowing that there was a way around the problem and I think we have now gotten pretty well under way. But just as we think we are making progress we hit a danger spot. When the officers are working along in a sincere effort, though, to improve conditions, I don't think the folks down the line are going to start a little mutiny and throw the officers overboard. Lots of times that has happened but I don't think it will happen in this case because we are producing some pretty good results out there in Ohio.

We must see the bigness of the projects in the program and not always magnify the mistakes of the different groups that have attempted to solve the problem. It is that set of problems that has gathered us here in our effort to solve them.

It is the purpose of this organization to solve those problems. That is the purpose it has served in the organization and development of this association to carry out this big business program.

I was thinking as I came in the room and looked at those five pictures on the posters hanging before you, "there is a message that would speak louder than any words." And gentlemen those five things Efficient Production, Better Merchandizing, Higher Living Standards, A Well Rounded Community and Equal Opportunity would help us out on the farm—they would spell prosperity on the farm, and a satisfied agriculture. They would reflect a sound industrial and financial condition for our nation.

Co-operation of Organizations

That is the thing that agriculture needs and that is one of the things the Farm Bureau is trying to do. It is attempting to correlate these problems and to render organized field service as we have developed our commodity lines and organizations and have tried to do so on what we at least considered sound basic principles.

We have found in our work that there is an overlapping back into the township and we find that there is a certain number of individual problems. We have a very diversified agriculture for which we feel very thankful because we consider that it is beneficial.

A multiplicity of organizations is essential to maintain any large group and we have found that it comes on back through the line, this spirit of co-operation and friendship, so that these groups all act together very gladly, and with this thing in mind, we are trying to work out a set of principles and to co-ordinate our efforts together and achieve our purposes in that way.

We have four field men for the counties and we are now going to put on twelve, and that means that they will take the instructions and the programme that our state wide groups want to work out and carry into their respective communities and in his local township unit and keep the work spreading along, through the farm bureau and the college boards, and in that way these activities will all be fused and

combined together. We find it an efficient method of operation and it is helping to make for full time work in agriculture. It is helping to do at least one good thing that is growing out of the multiplicity of all these agricultural interests, and that is the fact that it is developing co-operation and it isn't taking away any of the rseponsibility at all of the different groups that work with us. We go ahead and develop an organization and then we leave the responsibility for financial and other matters in connection with these various merchandising activities, whether selling or purchasing, to the organization itself, but we still co-operate with them, and to that end we have developed an Incorporated County Farm Service that keeps up the co-operation with the Farm Bureau and through which we can work our educational programme. Then we have our small Incorporated County Farm Bureau Service Companies into which stock is taken for the purpose of carrying on business, and by carrying out this system it correlates together, these operations and it is going to make a strong, recognized business institution. It is primarily financed from the State Farm Bureau Financing Corporation, the stock of which is owned by the Farm Bureau. We are also gathering in crop information, information on our live stock market, our poultry market, our dairy market, our wool market, and so on right back into the amounts, etc. produced by each county and each township.

Publicity and Information

We are finding that another big part of the programme is essential to any group's success, and that is the publicity and information work. Some folks have said that men don't talk enough. I have also heard it said and seen it demonstrated that what you tell a woman goes into her ear and out at her mouth. We find that the women are valuable publicity agents. The women in our Farm Bureau organizations are on the boards of directors and serve in different other official capacities and they are mighty efficient let me tell you.

In our annual budget which we adopted yesterday we added to that budget an item of $5,000 to put on one woman who will have charge of the whole of the home and community work, and we think that she is worth it, because in the development

of the Farm Bureau work one of the most important problems and one of the hardest to solve, is the raising of the farm to the higher standard of living. Where a woman enters the home or helps in the work of the farm there is a different touch and a different atmosphere entering into the whole program.

We find also that there is an improvement in the efficiency of a farm business where there is a wife, a mother, or, in some cases, as I have known it to happen, a sweetheart at the helm, because they are so much interested in the definite details of this work. It is well that this should be so, too, because in the case of a farm, where the home is, there is also the complete operation of the business. The woman should be an equal—a partner. We have recognized that in this work, because there are two places on that agreement in which both the man and the woman sign—or at any rate sometimes they sign. The woman usually does, anyway! (Applause) We find that that means that there is a partnership in that work.

Therefore this organization proposition is a benefit in that way, and so that is why we have our continuous membership agreement by which we hope that folks will recognize that we are building our county, our state, and our national Farm Bureau, on a basis that is going to be of continuous service and benefit to agriculture and we want to be sure that both the husband and the wife are going to be continuous members of our organization. We are not building for just one or two or three years—that is the way we formerly had of signing them up. We are right in the midst of our reorganization work now. There are only 63 of our counties that are putting on reorganization work but that means that next year we will have the difference between 63 and 83 counties—20 counties—in which to carry on our work next year, before we are completely reorganized. But when we go to taking into account the different conditions, and the amount of time, etc., and compare that with the fact that our farm bureaus heretofore have had about the same temperature and depth of snow, we consider that we have done good work. We are just now working on those regions ourselves, before we call into service the other local workers.

Membership

When you go into a meeting and see 250 men and women and know that you ought to have twice that number there, it doesn't look very encouraging, does it? We know who has brought in new members without looking at the cards because we can see by their earnestness and expression that they are determined—and practically every one of them had that same look in a meeting which I recently attended. They were just reporting progress at that meeting, and there were twenty men who got up from one county as those who had come the furthest to attend that meeting and one of them reported—"We have had 50% of increase in our township because of work," and I asked him the name of the town and it wasn't Macedonia but it sounded strangely like it. And they said, we want more help over in our county and a large number of those who were there volunteered to go. It is just typical of facts that we are finding all through these different counties.

We find that folks are realizing that this farm bureau organization is going to carry on its work and help them and in return they are willing to help, too; so, with that spirit of co-operation manifested and put into time and work and organization building they can see that we will have an organization that is going to be a truly wonderful thing. We find that out through the state our commodity organizations are also recognizing that as they have never recognized it before.

To bring this thing to a successful conclusion, as we shall, it is going to take time and work and bargaining power. We are building for the future and we must, naturally, build solidly. That end of the problem, we know very well, is the result of our labor and the growth of course isn't as fast as it is in some businesses in town. You pay your dues of ten dollars, but the investment in time and labor that we are putting into this proposition oftentimes means more than $10.00. We must sit across the table with organized industry and impart to them in the way that only organized industry can, the work that we are doing and the objects that we have.

Not every producer, home, working on his farm, has that opportunity that we get to call attention to our work, sitting among the leaders of industry and consider the facts that are now being brought to light in the United States.

That disparity in the difference of the income to the farm home is one of the points we brought out. We have to get out and spend hundreds and thousands of dollars to carry on this work, which the figures show that there is an increasing need for. Otherwise you wouldn't even be able to make a contribution of $10. If we can get our folks to be loyal to their farm bureau,—they must recognize and reconcile themselves to the fact that that money isn't going to return to them immediately, but may be returned by decreasing the price of different products that you have to buy,—then we will be able to make even better progress.

It is a patriotic ideal and besides you will gain in the long run because it acts as a kind of insurance against loss of money on account of the lowering of prices.

It is even more than insurance, because you are safeguarding the interests of your descendants for all time! I would just like to add the fact that every township and county officer can aid a whole lot if they will help us imparting that to their membership. When you do that, and stick to it, then the American State Farm Bureau Federation will grow and treble in membership and we feel that that appreciation of our efforts will show us that our labors have not been in vain. (Applause.)

THE PRESIDENT: Now we won't keep you folks very long, but Mr. Stewart has a short report to make. I take pleasure in presenting Mr. Stewart.

REPORT OF THE SECRETARY

BY M. MELVIN STEWART

The year 1926 will long remain in our minds as one in which the co-operative movement in agriculture has been severely tested and sorely tried. Some organizations have weathered the storm, some have been wrecked and then reorganized, while others have passed on into the agricultural history of the nation.

Some of the reasons for this condition are readily discernible when we study comparative figures. There is an old but true saying: "It takes money to make the mare go." The farmer has lacked money and for this there is a reason. In-

come, in a great many instances, has failed to equal expenses.

I would refer you to a very comprehensive statement, recently compiled and published, by Murray D. Lincoln, Executive Secretary of the Ohio Farm Bureau Federation. Mr. Lincoln, quoting his figures, in part, shows that in 1925-1926 the money invested in farming returned only 2½%. Railroads are allowed 5¾% and other industries paid from 6 to 7 per cent. and on up. The Farmer's income was $613.00 as against $1,400 for other workers.

In 1925 our agricultural wealth was 11.7% less than in 1912 while industrial wealth has increased since 1920 as much as 46%. Farm Bankruptcies are ten times greater while farm mortgages are increasing rapidly. Taxes have increased many fold. The politician will say that the rate has been held down or has even been lowered, but he dodges the issue regarding the great increase in assessments. Speaking for the country in general, direct taxes paid by the farmer in 1925 were 236% higher than in 1913. The question I wish to put up to you farmers here in convention assembled, is this:

What are you and I, individually, and we, collectively, going to do about it?

Individually, as you well know, we can do nothing, but collectively, or organized, we can wield a tremendous power.

We produce the basic commodities which this country and the world must have. Why not control them?

Industry and labor are prospering through organization. Surely organization is the only way out for agriculture.

Here in Maryland our farmers have been and still are suffering more or less from this economic situation. Fortunately, Maryland is pretty generally blanketed and served by four thrifty co-operative marketing associations, namely: The Maryland State Dairymen's Association; The Inter-State Milk Producers' Association; The Maryland-Virginia Milk Producers' Association and the Maryland Tobacco Growers' Association. Had it not been for these organizations the distress in Maryland would have been much greater.

Why is it that our producers of fruit, truck crops, grain, live stock, etc., will not profit by the example of the dairymen and tobacco growers? The Farm Bureau stands ready and

willing to assist in organizing such marketing associations whenever the producers show a disposition to take such a step.

Objects of the Farm Bureau

Article 2, of the Constitution of the Maryland Agricultural Society—The Maryland Farm Bureau Federation provides:

> SECTION 1. "The objects of this organization shall be to correlate, strengthen and unite the county and state farm organizations of Maryland; to develop the agriculture of the state and to promote, protect and represent the business, economic and educational interests of the farmers of Maryland."
>
> SECTION 2. "This organization shall maintain active membership in the American Farm Bureau Federation to the end that the combined influence and strength of the farmers of the United States may be available in solving the agricultural problems of the nation."

Surely no organization can have a more definite authorization to guide and control its actions and efforts. Surely no state in the country has its agricultural organization machinery so completely set up and federated.

Imagine what a power this federation could be if the 40,000 white farmers of this state were Farm Bureau members—sticking, staying and paying members all down the "long, long trail" to the goal of our desires and our demands for "Equality for Agriculture." To carry out the instructions so clearly defined in Section 1 of our Constitution, your state office has been constantly diligent although at times hampered because of a lack of sufficient finances and personnel.

1926 Annual Meeting

The year 1926 started off very auspiciously with a very successful annual meeting. The program was strong and varied. The attendance was large and the interest unsurpassing. May our annual meeting beginning today, be even more impressive.

New Officers

A new administration, under the leadership of President James W. Davis, assumed responsibility for the direction

and success of this organization. Your Secretary-Treasurer can testify how faithfully and well the trust reposed has been guarded and the affairs of the organization administered.

The organization, at the beginning of the year, was confronted with a deflated membership and a consequent reduced income. It had obligations of debt amounting to about $4,000, to meet. We are glad to report that of this amount, $2,500 has been paid off. You can see from this that the money available for everhead expense and for other projects, was rather small. It was necessary, because of this, to reduce the office personnel and general expenses and this was done.

State Farm Bureau Publication

The cost of publishing our paper or magazine, The Maryland Farm Bureau Co-oP, was out of proportion to the volume of our income. This amounted to approximately $4,000 a year. Our contract with the publisher expired on October 1, 1926 and from that time on we have been under less expense.

After many conferences a contract was signed whereby each paid-up member of the Farm Bureau will receive once each month a copy of the "Bureau Farmer," an official publication of the American Farm Bureau Federation. This monthly magazine will contain, in the Maryland edition, an 8-page section known as the "Maryland Farm Bureau Co-oP," in which all Maryland Farm Bureau and other agricultural news may be printed. We have tried, in the past to faithfully and clearly impart such information as would be of greatest interest to every reader.

Agricultural Corporation of Maryland

Following numerous conferences beginning immediately after the annual meeting of last year, there was consummated on April 14th, a reorganization of the Agricultural Corporation of Maryland. With a few exceptions, the Board of Directors of the Maryland Farm Bureau Federation also became the Board of Directors of the Agricultural Corporation of Maryland. Also, Mr. James W. Davis became President of the Corporation. Through his very able leadership

much progress has been made. Overhead expenses were greatly reduced and the general financial condition of the organization strengthened and improved. Service and savings, in purchases, to members and patrons have continued along the lines so well planned and established under the former leadership of Mr. L. S. Patterson.

The everlasting gratitude of the farmers of this state is due Mr. Patterson, who, for three years served as president of the Corporation. He took hold at a time when prospects for the future of the organization were not very promising. Through his great determination to make it a success its business increased many fold and its financial condition greatly improved. The main business has been in the distribution of dairy and poultry feeds, fertilizers, binder twine, seeds, lime, etc. There has been a great improvement in the relationship existing between the Farm Bureau and the Corporation. Harmony has prevailed. Your secretary has served on the feed and fertilizer purchasing committees and in other ways assisted Mr. Davis and the Corporation when such aid was requested. In the aggregate, this work consumed considerable time.

County Co-operative Associations

The State Office, upon request, assisted two counties, viz: Anne Arundel and Talbot, in organizing and incorporating county farm bureau co-operative associations. All the county co-operative associations have handled supplies for their members and patrons. Many have co-operated and dealt through the Agricultural Corporation of Maryland.

My New Year's wish along this line, is, that every county and local organization of the state will resolve to work and co-operate one with the other in 1927 even, if in some cases, it doesn't appear to operate to the best advantage at the time. Eventually such a policy will win for all. I believe all of us will profit by a statement credited to Andrew Carnegie. He said: "It marks a big step in a man's development when he comes to realize that other men can be called in to help him do a better job than he can do alone."

Milk Transportation

Early in the year appeals came from certain of our milk producers with reference to a decision in December 1925, by

the Circuit Court of Baltimore City and which decision granted an injunction restraining the State of Maryland or its agents from arresting truck drivers of the Western Maryland Dairy, Inc., for the failure of the Dairy to obtain permits from the Public Service Commission and to pay to the state the necessary franchise tax.

Without going into detail, the State Farm Bureau employed an attorney and became a party to the appeal filed by the State of Maryland. On May 17th Maryland Court of Appeals handed down a decision reversing the decision of the lower court. This was a distinct victory and we are pleased to have had a small part in securing the benefits resulting from this higher court decision.

Down on the Eastern Shore our milk producers were threatened with arrest for failure to secure the necessary permit and pay the ton-mile franchise tax as a public carrier. We were able to serve these farmers, present their case to the proper state authorities and get a ruling exempting them from the operations of the law, in that no money revenue was received by the person doing the hauling. The farmers were operating on a rotation plan, each taking his day and turn to haul the milk of the group.

Wool Marketing

Believing there was a splendid opportunity to start some co-operative wool marketing, your secretary began work on the problem. It was realized from the beginning that it would be impossible to start such a project on a large scale in Maryland. Hence the need to interest neighboring states. A trip to Charleston, West Virginia, was made and the West Virginia Farm Bureau interested. The Secretary-Treasurer of the West Virginia Farm Bureau also holds the same position with the West Virginia Wool Growers' Association.

The officers of the Virginia Co-operative Sheep and Wool Growers' Association were also interested in this tri-state pooling and marketing plan. After many conferences the Eastern Wool Growers' Federation was incorporated. I was greatly assisted in this work by the following Marylanders: J. W. Jones, Dr. F. B. Bomberger and K. A. Clark.

Maryland incorporated the Maryland Farm Bureau Wool Pool, Inc., thus being able to come into the Eastern Wool

Growers' Federation in full and equal membership with the Virginia and West Virginia associations.

Maryland producers consigned 12,321 pounds of wool to the pool. Virginia, 129,413 pounds and West Virginia 185,-991 pounds, or a total of 327,775 pounds.

The wool was consigned to Baltimore, graded by an expert grader, stored in a fire proof warehouse and fully protected by insurance. An experienced sales agency was employed as salesman for the federated pool. Instead of trying to "dump" the wool, every effort has been made to move it direct to the mills as needed and at what is hoped will be satisfactory prices.

Officers of the Eastern Wool Growers' Federation are: President, Owen I. Thomas, Round Hill, Va.; Vice-President, J. B. McLaughlin, Charleston, West Virginia, and Secretary-Treasurer, M. Melvin Stewart, Baltimore, Md. The Executive Committee on the Federation consists of President Thomas, Vice-President McLaughlin, and J. W. Jones, Maryland.

Maryland's proportion of the wool in the pool is small but satisfactory considering the fact that by the time the organization of the Federation was completed, the growers were clipping and selling their wool. Virginia and West Virginia had the advantage of several seasons' operations. The opportunity to build the pool of this tri-state Eastern Wool Growers' Federation to 4,000,000 or 5,000,000 pounds is entirely possible and feasible provided the growers will be patient and will also give it their fullest support.

Automobile Insurance

Our members demand direct benefits that can be measured in dollars and cents. We have tried to meet this demand by offering to those of our farmers who may want it—automobile insurance at a 25% saving on premiums. Arrangements were made with one of the largest national mutual insurance companies which will write policies protecting the insured, as he may elect, against loss from public liability, property damage, fire, theft and collision.

The time is fast arriving when compulsory automobile insurance, covering property damage and public liability, will

be a matter of legislative enactment in every state. Massachusetts has such a law which went into effect on January 1st this year. Such a bill was defeated at the last session of the Maryland legislature.

A test was recently made in Baltimore county where 27 farmers were visited and only two out of the 27 were not interested. Twelve have insurance in force but want Farm Bureau insurance when their present policies expire. Thirteen farmers, owning 14 cars and six trucks, purchased this insurance, paying at the standard rate, a total, in premiums, of $598.21. The 25% saving will amount to a total of $149.55 or an average saving, person, of $11.50. This will show that every farmer in the state who avails himself of this opportunity may save approximately his Farm Bureau dues.

Poultry Producers' Association

In 1925 every effort was made to organize an egg and poultry marketing association with headquarters on the Baltimore market. Considerable of a campaign was put on in a limited territory in Baltimore, Harford and Anne Arundel counties to secure the necessary membership and volume of business. The directors named in the articles of incorporation, after carefully canvassing every phase of the situation, decided that due to the lack of support on the part of producers, it would be impossible to launch the enterprise. They, therefore passed an order directing that all contracts and notes be returned to the subscribers and that the effort be abandoned. Possibly at some future time the producers of poultry and eggs may decide that they want to form such an association. It surely cannot be done until it meets with their support.

National Legislation

In addition to the above projects dealing with marketing and purchasing of commodities, the State Office was called upon to render service in a great many other lines. One, the milk case, we have already enumerated. Your secretary appeared before the Congressional Committee of the House, on Coinage, Weights and Measures, arguing in favor of the Standard Containers Bill, known as the Perkins Bill, then before the committee for consideration. All during that portion of the year that Congress was in session, we kept in

constant communication with Senators and Congressmen with reference to various farm legislation before the National Congress.

Grain Grading

Your secretary was one of several representatives from the State of Maryland in conference with the Secretary of Agriculture, in his office, discussing the effect of a new fumigant for wheat and other grains and the effect of the notation on the grading certificate referring to the odor noticeable in the grain immediately after the use of this fumigant. It is believed as a result of this conference, some improvement will be secured in the manner in which this matter will be handled by the Federal grain inspectors throughout the country.

Insect Control Conference

Your secretary represented this organization at a meeting of Horticulturists and others interested in the matter of securing some definite support from the state government towards control of injurious insects that are already across our borders and about to invade the state. Particular discussion was given to the problem of the Japanese Beetle invasion, the insect already being in the states of Pnnsylvania, Delaware and a very serious pest in New Jersey. As a result of this conference a committee was appointed to wait on Governor Ritchie and to ask that a special fund be provided with which to combat any infestation of this insect in the state this year, should it be found necessary. A recent letter from the Governor advising that the amount requested has been granted and placed in the budget.

Meetings and Conferences

The President, Vice-President and Secretary, of the State organization have been invited to many meetings and conferences within the state and in practically every instance have been called upon to address those assembled. Your secretary spoke before two different groups of rural ministers; one was at the Rural Ministers' Conference at the University of Maryland and the other before another group of ministers at Washington College, Chestertown. The average member does not realize the time that is consumed in going to and from the

various meetings, picnics and banquets. It calls for considerable time and expense. The State Office is only too willing, however, to attend as many of these meetings as possible and to give every assistance desired. We have tried, where we could, to arrange these meetings on a definite itinerary, thus reducing expenses. In the main, however, they come at such times as to necessitate making special trips to and from these meeting places.

Joint Meeting Maryland Tobacco Growers' Association and Maryland Farm Bureau Executive Committee

A joint meeting of the Executive Committee of the Maryland Tobacco Growers' Association and the Maryland Farm Bureau Federation was arranged and held in the office of the Maryland Farm Bureau Federation for the purpose of trying to reach a definite understanding and agreement of relationship that would be for the mutual good of both organizations in Southern Maryland. After some discussions a resolution was adopted.

Farmer's Day at College Park

The Farm Bureau was especially honored at Farmer's Day at the University of Maryland. At one of the largest gatherings of Maryland farmers and their families, President Sam H. Thompson, of the American Farm Bureau Federation was present and addressed the gathering in the Ritchie Gymnasium. It was an inspiring sight to see the vast number of farmers there, studying the various exhibits and demonstrations that were presented by the University authorities. Any farmer who did not visit College Park on that day certainly missed one of the best opportunities he had during the year, to learn something of its value and also to meet and make the acquaintance of the many other Maryland farm folks who were there.

Farm Bureau Day at Timonium

For the third year in succession, the management of Timonium Fair, under the very able leadership of Mr. John M. Dennis, and the excellent management of Mr. M. L. Daiger, set aside Wednesday of the Fair week as Farm Bureau Day. The officers and directors of the Maryland Farm Bureau Federation were guests of the Fair Association at luncheon.

Many Farm Bureau folks from all over the state attended the Fair on that day and great interest was displayed in all the various exhibits and especially in the live stock.

Part of the special fun for the day was the hog-calling contest, with contestants from several counties and the horse-shoe pitching contest with teams from various counties competing. It is hoped that Farm Bureau Day will continue to be an annual event at Timonium Fair and that the farmers of the state, and especially the Farm Bureau members, will more and more make an effort to turn out and visit the Fair especially on Farm Bureau Day.

European Corn Borer

Already we have mentioned the possibilities of an invasion by the Japanese Beetle. The very destructive European Corn Borer is rapidly approaching the northern border of the state, coming from the direction of Lake Erie down through Pennsylvania. The quarantine lines of this insect are now within thirty or forty miles of the Mason-Dixon line. Every effort should be made on the part of farmers of this state, especially those in the heavy corn-growing section, to organize and to do everything possible to combat the borer. I trust that this convention will go on record in reference to this matter. When it is considered that in Ontario there has been a loss of 90% in their production in the last six years and that corn growing has practically ceased to be a part of their farming operations as a result of the insect, you can realize what we have confronting us. The national organization is making every effort, along with the various corn-growing states, to get the Federal government to appropriate a large sum of money and go very strenuously and intensively after the elimination of this insect which is a serious menace.

Chicago Annual Meeting

The Board of Directors of the Maryland Farm Bureau Federation selected your President, Mr. James W. Davis, as the voting delegate to the annual convention of the American Farm Bureau Federation, in Chicago last month. Vice-President E. Thomas Massey and your Secretary were named as the non-voting delegates. The meetings of the convention were very instructive and contacts that we were able to make

were profitable, we believe, for the good of the organization and our farmers. It is to be regretted that more of our farmers could not attend these meetings. I feel certain they would have come home with a new enthusiasm and a greater inspiration with regards to the problems of the Farm Bureau and what it can do for the upbuilding of agriculture in this state and in this country.

Farm Bureau Membership and Finances

Membership in the Farm Bureau has expired in several counties this year. Your secretary has given assistance at meetings in making addresses and working with headquarters committees in these counties, in preparing campaign literature and helping with other membership plans. As stated before, the most serious situation that confronts us, is in Southern Maryland. I believe the time will come when the good people of Southern Maryland and elsewhere in the state will realize that there is a need for a general service Farm organization as well as for a commodity marketing organization.

In the beginning of this report I tried to outline some of the financial problems confronting us at the beginning of the year. These problems are very serious. There has been a very serious shrinkage in membership, due to the expiration of the first three-year contracts and the failure of the counties to make a complete campaign seeking renewals and new members. After four years of very active contact with state Farm Bureau work, your secretary has come very definitely to the conclusion that now and then volunteer solicitors will do good work, but if the job is to be effectively done, paid and trained solicitors, carefully chosen for their integrity and ability, must be put into the field and kept constantly at the job of canvassing the farmers of the state for membership in the organization. The same thing has been true with reference to handling of the feed pools and fertilizer sales. Whenever a trained salesman is sent into the county the local people are willing to go out and work with him. Immediately the salesman is withdrawn from the county all sales effort seems to stop. Many of the local people seem to feel that they cannot go out on their own initiative and do this work.

My recommendation, therefore, to the organization is that if we expect to meet the many demands that are being made for service by the members throughout the state and expect to keep their county and state offices open, it is going to be necessary to have a very distinct policy and that policy must be put into immediate effect. The leadership and the members must address themselves particularly to this subject of membership, the getting of which, means, in the end, a greater revenue and a greater opportunity for service.

As outlined in the beginning, we have been going through a long period of depression during which time money has been rather a scarce article with farmers. I do not believe, however, that if the farmer has to cut his expenses, he can afford to cut his membership and dues in an organized agricultural body. Surely it is only through organization that we will effect any change or secure any improvement in conditions as they now exist.

Appreciation

In closing nearly five years of Farm Bureau work, starting as a county Farm Bureau president, and ending with four years as your State Secretary-Treasurer, I desire to express my appreciation for the many courtesies that have been extended me by the farmers and others in the state. Wherever I have gone, from county to county and even into other states as your representative, I have received nothing but the greatest kindness and consideration.

It has been a real pleasure and a privilege to work with two such men as have been at the head of this organization, Mr. E. P. Cohill and Mr. James W. Davis. During the last year Mr. Davis and I had to face several situations that were rather trying and gave us considerable worry and concern. Never once have I seen him ruffled or out of sorts and often it has been his keen sense of humor and his diplomacy that made possible a solution of the particular problem.

The same can be said with reference to the various members who have served on the Board of Directors and the Executive Committee. In the main, these men and women have given very serious consideration to the many problems that have been brought before them at the various meetings held in the last four years. When we compare the activities in other

states with what we have done here in Maryland, I think we need not be ashamed of our efforts.

I cannot close this report as Secretary, without further expressing my appreciation of the very loyal and faithful service that has been rendered by two employes who have been connected with the State Office ever since the office was opened, March 1923. I refer to Miss Ida K. Fairbank and James M. Hoblitzell. The same degree of appreciation for their co-operation, must be extended the officers of the University of Maryland and the Extenison Service as well as all the various co-operative associations and organizations. All have had a part in making the whole movement the success it has attained.

REPORT OF TREASURER

Maryland Agricultural Society—Maryland Farm Bureau Federation

BY M. MELVIN STEWART, TREASURER

In presenting the Treasurer's report for 1926, I will not repeat what I said in my report as Secretary, with reference to our debt, amount of the indebtedness liquidated and matters concerning the cost of our paper.

Unless our income is increased, and this can only come through increased membership, our usefulness as a state organization will be very greatly hampered and considerably curtailed.

I want to call your attention to a few matters pertaining to constitution as it relates to our financial structure.

ARTICLE 3—Section 1-A "Membership"—Should either be changed or certain counties required to meet the present conditions contained therein. Section 1, requirements for membership is as follows:

> (a) "The membership of the said county Farm Bureau or similar organization shall be composed of not less than one hundred (100) persons who own and operate a farm or whose annual occupation is farming."

Five counties of this state are under this minimum of 100 members.

Section 2 of Article 3, should be amended by striking out the words "*for the first quarter*" and substituting the following words: "*as provided in Article* 9" thus making section 2 of Article 3, read:

> "*Application for Membership*—A county Farm Bu reau or other similar organization applying for membership in this Federation shall present written application accompanied by dues of its members, as provided in Article 9, accepting and agreeing to abide by the Constitution and By-Laws and any amendments thereto."

Section 1 of Article 4, should be amended to meet the recommendation of the Credentials Committee of the January 1926 convention in which it was suggested that each county organization be entitled to one voting delegate for every 50 members in good standing or major portion thereof.

The Constitution should be further strengthened by requiring that all dues collected for the state organization must be paid into the State Treasury before said county becomes eligible to seat any director or delegates. The National organization made such an amendment and it has had a good effect.

Further: Article 9, "Finances" should be amended so as to provide, *First*—for an annual audit of each county's membership accounts, and, *Second*—requiring the execution of a definite contract or agreement between the state organization and each county organization. When this has been done, the state and county organizations can secure a better form of fidelity bond which will hold the bonding company responsible in the event any county treasurer, covered by said bond, fails to forward any and all dues collected from every member and intended for the State and National organizations.

We have had very little withholding or diverting of state funds. One case came up this year, but fortunately practically all the money was collected. The former treasurer has gone and his successor is making every effort to make proper settlement of the small balance owing the State Office. Several other counties have been negligent and have not been prompt in making remittances to the State Office.

Statement of Income and Disbursements for Period from January 1, 1926 to December 31, 1926.

INCOME ANALYSIS FROM MEMBERSHIP DUES:

County dues charged balance from 1925		$785.16
County dues charged for 1926		9,549.84
Total County dues charged		$10,335.00
Associated Membership dues charged for 1926		200.00
National dues collected from counties		1,723.50
Co-op. subscription collected from counties		1,723.50
Total amount paid in by counties and associated members		$13,982.00

OTHER INCOME:

Interest earned on bank balances	$21.50	
Refund of traveling expense	157.84	
Refund of Executive Committee exp	100.00	
Refund of Farm Bureau Organ. exp	5.00	
Refund bonding expense	61.80	
Received from 1925 annual meeting exp.	1,116.50	
Received from 1926 annual meeting exp.	5.00	
Refund of Co-op. Purchases	77.50	
National Association dues	50.00	
Received of Publicity expense	210.92	
Refund wool marketing expense	10.00	
Refund of nine county campaign exp.	115.00	
Received from Farm Bureau movie	399.44	
Refund office expense	42.31	
Refund telephone, telegraph and rent	10.31	
Refund Board of Directors' expense	100.00	
Notes receivable paid	232.00	
Refund of legal expense	264.00	
Total other income		2,979.12
Total income		$16,961.12

DISBURSEMENTS:

Traveling expense	$489.88	
Executive Committee expense	298.73	
Interest paid out	125.90	
Farm Bureau organization exp.	91.09	
Bonding expense	99.00	
Canners committee organ. exp.	29.00	
Annual meeting expense 1925	1,343.99	
Annual meeting expense 1926	8.91	
Co-op. Purchases organization exp.	67.50	
Dues National Assn	1,708.75	
Publicity expense	1,760.91	
Amount carried forward	$6,023.66	$16,961.12

Amount brought forward	$6,023.66	$16,961.12
Salary clerk	1,390.00	
Salary publicity	1,560.00	
Salary Director of Organ.	368.38	
Salary Sec'y & Treas.	3,080.00	
Salary accountant	265.00	
Taxation Organ. expense	22.50	
Wool marketing organ. exp.	104.94	
Nine county campaign	858.63	
Farm Bureau movie	51.00	
Office expense	514.73	
Telephone, telegraph and rent	1,093.09	
Board of Directors' expense	376.15	
Paid on note	1,500.00	
Legal expense	264.00	
Total disbursements for 1926		17,472.08
Excess disbursements over income		$510.96
Surplus or cash January 1, 1926		702.30
Total surplus or cash December 31, 1926		$191.34

The following is a financial statement of the State appropriation made to the Maryland Agricultural Society—Maryland Farm Bureau Federation, approved by the Council and submitted by Dr. T. B. Symons.

MARYLAND AGRICULTURAL SOCIETY—MARYLAND FARM BUREAU FEDERATION
FINANCIAL STATEMENT, 1925-1926

Check	Payee	Classification	Amount Expended
137	Union Trust Company	Office rent (October)	$ 52.92
138	W. D. Hines	Community Ex. (Pr. Geo.)	12.00
139	Union Trust Company	Office rent (November)	52.92
140	Leah W. Hopewell	Community Ex. (Colored)	25.00
141	J. S. Reisler, Secy.	Community Ex. (Cecil)	50.00
142	W. C. Jester	Community Ex. (Garrett)	50.00
143	W. B. Posey	Community Ex. (Pr. Geo.)	15.00
144	W. R. Ballard	Travel (Vegetable Growers' Association Conference)	2.21
145	S. H. DeVault	Travel (Darlington Farm Bureau)	9.18
146	M. D. Moore	Community Ex. (Washington)	25.00
147	O. L. King, Treas.	Community Ex. (Calvert)	50.00
148	J. F. Armstrong	Community Ex. (Colored)	25.00
149	R. F. McHenry	Community Ex. (Allegany)	50.00
150	M. D. Bowers	Travel (Farm Bureau meetings)	49.46
151	Union Trust Company	Office rent (December)	52.92
152	E. K. Walrath	Community Ex. (Howard)	50.00
153	L. M. Goodwin	Community Ex. (Caroline)	23.90
154	J. E. Tritt	Travel (Committee meeting, Baltimore)	21.25
155	L. H. Martin	Community Ex. (Colored)	50.00
156	S. S. Stabler	Community Ex. (Dorchester)	25.00
157	Hennegen-Bates Co.	Community Ex. (Premium for Corn Show)	18.00
158	Hyatt Mfg. Co.	Office supplies & stationery (Badges for Annual Meeting)	38.55
159	M. M. Stewart	Travel (An. Meet., Chicago, Amer. Farm Bur.)	92.57
160	Union Trust Company	Office rent (January)	52.92
161	Keystone Printing Co.	Printing (Premium list for Annual Meeting.)	18.00
162	Frank D. Gardner	Travel (Baltimore Annual Meeting)	36.05

MARYLAND AGRICULTURAL SOCIETY—MARYLAND FARM BUREAU FEDERATION
FINANCIAL STATEMENT, 1925-1926

Check	Payee	Classification	Amount Expended
163	Md. Crop Improvement Assn.	Community Ex. (Premiums State Corn Show)	164.00
164	W. B. Connell	Travel (Baltimore Annual Meeting)	31.20
165	H. H. Zimmerly	Travel (Baltimore Annual Meeting)	21.30
166	Elsie N. Geis	Travel (Stenographer, Annual Meeting)	2.87
167	Emily B. Holland	Travel (Stenographer, Annual Meeting)	4.96
168	Olive K. Walls	Community Ex.. (Talbot)	50.00
169	Hennegen-Bates Co.	Community Ex. (Premium for Swine Growers)	18.00
170	Fred W. Geise	Travel (Baltimore Annual Meeting)	5.46
171	Chas. C. Gelder	Travel (Baltimore Annual Meeting)	80.00
172	Union Trust Company	Office rent (February)	52.92
173	Grand Lodge of Md. I. O. O.F.	Travel (Expense Annual Meeting)	50.00
174	Hazazers Dancing Palace	Travel (Expense Annual Meeting)	50.00
175	Chair Exchange	Travel (Expense Annual Meeting)	56.00
176	Royal Arcanum Cl. Bldg. So.	Travel (Expense Annual Meeting)	42.50
177	J. Andrew Cohill	Travel (Directors' meeting)	18.70
178	Lewis M. Lambert	Office supplies & stationery (Signs for Annual Meeting)	24.65
179	U. of Md. Students' Supply Store	Community Ex. (Premiums for Swine Growers)	10.80
180	L. C. Corbett	Travel (Baltimore Annual Meeting)	3.17
181	Mrs. W. R. Dulin	Community Ex. (Caroline)	15.00
182	University Press	Office supplies and Stationery (Stationery)	7.75
183	Hennegen-Bates Co.	Community Ex. (Premium for Swine Growers)	2.00
184	B. B. Jones	Travel (Baltimore Annual Meeting)	8.00
185	J. Andrew Cohill	Travel (Directors' Meeting)	18.70
186	B. B. Jones	Travel (Directors' Meeting)	10.10
187	Union Trust Company	Office rent (March)	52.92
188	Jesse M. Huffington	Community Ex. (Anne Arundel)	50.00

MARYLAND AGRICULTURAL SOCIETY—MARYLAND FARM BUREAU FEDERATION
FINANCIAL STATEMENT, 1925-1926

Check	Payee	Classification	Amount Expended
189	Union Trust Company	Office rent (April)	52.92
190	Union Trust Company	Office rent (May)	52.92
191	Rexford L. Holmes	Printing (Report. Annual Meeting)	185.00
192	M. D. Moore	Community Ex. (Washington)	25.00
193	Union Trust Company	Office rent (June)	52.92
194	J. Andrew Cohill	Travel (Directors' Meeting)	18.70
195	Union Trust Company	Office rent (July)	52.92
196	Geo. R. Stuntz	Community Ex. (Charles)	50.00
197	Benj. B. Jones	Travel (Directors' Meeting)	5.55
198	M. M. Stewart	Other expenses (Labor—Annual Report)	75.00
199	T. B. Symons	Other expenses (Annual Report)	50.00
200	M. T. Bowdoin	Communication (Postage)	50.00
201	M. D. Bowers	Other expenses (Labor—Annual Report)	25.00
202	K. G. Connolly	Other expenses (Labor— accounts & report)	50.00
203	Elsie Geis	Other expenses (Labor—clerical work, report)	10.00
204	Union Trust Company	Office rent (August)	52.92
205	U. of Md. Store	Office supplies & stationery (Sta.)	8.10
206	Md. Farm Bureau Federation	Communication (Postage)	25.00
207	Dr. L. H. Bailey	Travel (Summer Meeting)	75.00
208	G. Rust Canby	Printing (Programs, sum. meet.)	47.50
209	D. G. Harry	Travel (Farm Bureau meetings)	69.25
210	Union Trust Company	Office rent (September)	52.92
211	Md. Farm Bureau Federation	Office rent (Additional rent)	4.96
212	Ethel Joy	Community Ex. (St. Mary's)	50.00
213	T. B. Symons	Travel (Ex. Com. Meet.)	6.95
214	Hennegen-Bates Co.	Community Ex. (Premiums Timonium Fair)	22.50

MARYLAND AGRICULTURAL SOCIETY—MARYLAND FARM BUREAU FEDERATION
FINANCIAL STATEMENT, 1925-1926

Check	Payee	Classification	Expended Amount
215	H. Weis & Son	Community Ex. (Premiums Timonium Fair)	30.00
216	Md. Farm Bureau Federation	Community Ex. (Timonium Fair Badges)	7.50
217	B. & O. Railroad Co.	Communication (Ex., an. rpts.)	3.69
218	B. & O. Railroad Co.	Travel (T. B. Symons scrip)	30.00
219	Md. Farm Bureau Federation	Travel (Miscellaneous travel)	357.84
220	T. B. Symons	Travel (Indian Head Meeting)	4.23
221	Dorothy Emerson	Community Ex. (Premiums, Timonium Fair)	50.00
222	U. of Md. Store	Office supplies and stationery (Stationery)	24.51
223	Un. of Md. Press	Office supplies and stationery (Envelopes)	4.00
224	C. & P. Telephone Co.	Communication (Telephone)	71.31
Total paid by Treasurer for exempted expenditures			$3,552.96

Paid by Comptroller's Office for unexempted expenditures:

Thomas & Evans Printing Co.—Programs for annual meeting	$ 101.67	
Whitaker Paper Co.—Wrapping paper	5.74	
Industrial Printing Co.—Annual Reports	1,016.93	
Advertisers' Engraving Co.—Cut for annual report	3.75	
Industrial Printing Co.—Separates of Annual Reports	232.25	
Art Metal Construction Co.—4 drawer legal size filing cabinet	43.20	
H. M. Biden Co.—Mimeograph ink	7.50	
Hess Typewriting Co.—Mimeograph stencils	36.00	
Total paid by Comptroller's Office for unexempted expenditures		$1,447.04
Total paid by Treasurer for exempted expeditures		3,552.96
Grand total of expenditures—October 1, 1925—October 1, 1926		$5,000.00
Total appropriation		5,000.00

THE PRESIDENT: Mr. Stewart has a few announcements to make.

MR. STEWART: There will be six different organizations meeting toworrow morning, part of them in this building, part of them in the Odd Fellow's Temple and part of them in the Royal Arcanum Building. You will find a bulletin board in the lobby telling you where each section meets, in the morning. The meeting tomorrow afternoon will be in the Alcazar auditorium on Cathedral Street near Madison Street. We cannot use this room tomorrow afternoon as the management has got to get ready for the banquet tomorrow night. All of you who have not purchased tickets I would particularly ask to get them as quickly as possible. Last year we had to turn away some of our people because all tickets were sold out. Some people actually offered a premium for banquet tickets when they found no more were to be had.

If you haven't secured your banquet ticket get it as quickly as possible or you may be left out. The food is going to be good, of course, and then you are in for some real good speeches and an enjoyable, good time.

We have quite a number of good features on the programme. We believe that it will be rounded out in fine shape. You all know what the programme is for tomorrow afternoon. There will be an address by our National President Samuel H. Thompson.

Then, too, I guess most of you people here know Mrs. Chas. W. Sewell. She is going to be here tomorrow and I know that you are going to be in for a real treat.

And thereupon at 5 o'clock p. m. the meeting adjourned.

SECOND SESSION

Thursday, January 6, 1927

PRESIDENT DAVIS: The meeting will please come to order.

Now we will make a little different order of doing things than what we had yesterday. When a man has a job and has to do that job himself and has no way to pass the buck to somebody else, that is one proposition. But when I was at the national meeting recently, I watched Mr. Thompson closely

and I found out that he had a habit of getting other people to do his work and they did it quite efficiently. Now this afternoon I am going to try that method. We have with us today a man whom I know and whom you all know and we know him to be an able man and one well-fitted to preside this afternoon. I take pleasure in introducing to you your presiding officer for this afternoon, Mr. E. P. Cohill. (Applause).

MR. COHILL (Chairman pro tem): Brother farmers, ladies and gentlemen: It is rather a surprise to me to have to face you again. You remember, of course, that I had the great pleasure of doing so for three years, and I thought I had completely resigned, you know, like old people do when they get worn out. But I'm not going to take up very much of your time.

We have on the program here this afternoon an address on co-operation by Mr. E. R. Root, the president of the A. I. Root Company of Medina, Ohio, and he told me that he had a notion to turn his ten thousand honey bees out here and someone said they didn't think the building was just right for that, so he won't do it but he knows the bee business from top to bottom. He is in contact all the time with over a million honey producers and bee producers. So I take great pleasure in introducing Mr. Root. He will tell you all about the bees and the honey. (Applause).

CO-OPERATION AN ESTABLISHED FACT

By E. R. ROOT, of Medina, Ohio.

Ladies and Gentlemen, and Members of the Federation:

I didn't bring my ten thousand honey bees because they told me that the hall would be unsuited for them. I don't want to break up the meeting so I won't turn them loose in this room and then call them into my hat. I am not going to do this, so you needn't worry. But there are a few things that I do wish to speak about. I want to speak about some things, first of all, that make me wonder whether I am going or coming.

One thing, my youngest son said to me some time ago, "Pa, I want to have a radio," and so I put him off a little bit. I said, "O, son, I understand there's going to be a whole lot of changes and improvements in the next few years and then if

we wait we will have all those improvements." "Well," he said, "I can't wait. I'm going to make one." Well, that was all right, so I gave him my permission and he brought home a lot of insulated wire and some spools and some other things and commenced working on them, and so a few days afterward he said to me, "Well, Pa, I've got my radio made," and the marvelous part of the thing was that *it worked!*

A few days after that, two or three days, maybe, a telephone message came, "Tune in Schenectady, N. Y.,—London is speaking." So I began to turn some dials and listen, and, sure enough, very shortly I did hear the Lord Mayor of London talking to me, in my own home. I knew it was he because I recognized the Cockney English of my grandmother and mother, born there, and I heard him express his pleasure at meeting me, and I said, "Thank you," but I guess he didn't hear me. (Laughter). Then he said that he was sorry that we hadn't yet joined the League of Nations and I said "Amen," and he said, "Some day we'll all get together in our League of Nations," and I made some comment on that, but he didn't answer me. (Laughter). Then I heard him say, "Now we are going to hear the Big Ben Clock of London. And I listened and very shortly I did hear that Bome, Bome, Bome, Bome, of that famous clock for which so many other clocks have been named. And I thought to myself, "Is this possible that I am in London hearing all these things." And then I reasoned, "No, Here I am in my own home. Can that be possible; and I listened, and sure enough there was the clatter of the street in Medina. I turned off the radio on London and turned back the dial a bit and soon I got Denver; then I got New York City and Chicago, and so on, back and forth across the continent, and I leaned back in my chair and I said to Mrs. Root, "I don't know whether I'm going or coming!"

I have sympathy for the man who said there was no such thing as a giraffe, so, to convince him, his friends took this doubting one to a zoo, and showed him a giraffe. He looked at it for a long time, more up and down than any other way, and then he turned his back and said, "I won't believe it; there ain't no such animal."

I couldn't bring myself to believe that I had heard those things; that I had heard the Lord Mayor talking, in London. I couldn't believe that I had just been talking with Denver. I said, "That is not possible; I am not seeing or hearing this."

And then I looked out on the street and I noticed the string of trucks and automobiles, going along at a pretty good speed and then I went back a little time and remembered that I had bought myself an automobile and congratulated myself if I could get more than 1,000 feet without my wife pushing me, and then when I got up to fifteen miles an hour they arrested me for breaking the speed limit. (Laughter). Yet, in the last year I have driven 9,500 miles without an accident!

And years ago it was only horses!

Then I began to think of the changes that have taken place in the arts and along the line of organization; that has taken place to a remarkable extent in big business and also in small business, and then I began to think of the farmer and the beekeeper. They have their automobiles; they have their radios, and they have all of these other things. They have a knowledge of production and of the best methods of confronting their different problems, and then, with that I came right back down to this solid earth again and I thought, what is the matter that we don't get better prices for our honey and all of our other farm products—just because they have not yet realized the benefits and advantages of organization. But, I said, "Thank the good Lord the farmers are beginning to organize," and they have! Then I remembered that when I was in California I had learned about the advantages of the farmer being organized out there; I remembered how the fruit was rotting on the trees because there was no market for it and then how the price came up, after they were organized.

I remember, for example, the raisin exchange. The raisin exchange is organized and now it is a fact. Then I remember, too, how the beekeepers organized in California and they came along very nicely and were quite successful until the war came and they collapsed. I also remember the other organizations which have arisen and been successful, for a time, at least.

I am going to take the time, now, to tell you something about the oldest co-operative organization in the world; probably the

first that ever existed. I refer to co-operation as we find it exemplified in the bee hive. Maybe you don't think there is co-operation there. But let your horse step on a bumble bee's nest, or accidentally bump into a hornet's nest, and you will find beautiful co-operation, all right. And they begin co-operating in a moment, too.

You have all heard that old story, so hackneyed as it is, but it will bear repetition here, I think, for the purpose of illustrating my point—that story about the stage coach driver whom you have all heard of, who was so adept with the use of his long whip and the drummer was riding with him and he flicked a fly off the ear of the forward horse without even touching the horse itself.

Then he reached up and flicked a leaf off the tree overhead, and all this excited the drummer's admiration very much, and so he pointed up to a bumble bee's nest they were passing—bumble bee's or yellow jackets, it doesn't make much difference anyway—and asked him to flick that with his whip, and he said no, "Them bees be organized."

I want to tell you that I have a bee hive myself, and I have studied the nature of a bee hive and I have studied other forms of co-operation, but a beehive is the best of any of them. If we want to have anything to do with bees the only thing that we can do is to get in there and break up the organization. I could turn ten thousand bees loose right in this room and open up a window or two and not one of you would get stung. On the Chautauqua circuit I have often done that, and those 10,000 bees would go right over by the little girl who stands there with a wand. I say to them, "Now she is going to wave those bees back; I am sorry that I broke up the organization of that colony." A lot of people have tried to fool me, but I have always made out all right. I advertise on the Chautauqua literature, that Root will handle at that Chautauqua meeting yellow-jackets, hornets and bumble bees as well as the common honey bees, so on one Sunday afternoon, in West Virginia, they picked out the crossest bees they could find in the whole United States and I said to the man when he brought them to me, "Are these bees organized?" He said, "I'll say they are. They stung me so that I couldn't get out of bed for two days." Then he added, "I brought them in my flivver."

Now, that was just what I wanted. I knew that those roads were pretty rough and that the poor little fellows had been brought in there, half jolted to death and almost frightened to death. I said, "Did you have the balloon tires or ordinary tires;" and he said, "Ordinary tires!" and I took the hive and looked at it, and he had it covered over with a cloth and then that was wound round and round with strands of copper baling wire—what he had that wire on there for is more than I can imagine. It certainly wouldn't keep any bees in if they got through that cloth once. So it was up to me to take these insulted bees and pacify them, up there on this platform. I said, "Did you close that thing up like that?" and he said, "I did."

I said, "Now these bees are mine. They are going to be my kittens, this afternoon. I can do anything with them I please." They had been so ugly that the State Bee Inspector for that county, even, couldn't handle them. Well, I unwound all of those wrappings and released the bees, half suffocated. They didn't care to sting anyone, for they had been shaken about and jolted as only a Ford can do it and I know how it is, because I drove a Ford over 9,000 miles last year and they were just naturally good natured at getting out.

The organizations of those bees had been completely broken up. I scooped them out and held them in my hands, and I said to my little "fairy"—I always pick out some pretty little girl in the audience and hand her a wand so that the people will know that the child isn't in on it—"Wave your wand, now, and the bees will fly away," and she said, "They won't sting me, will they," and I said, "No." And I poured them into her hands and she played with them for a minute and then I said, "Now throw them up in the air and they will fly away, and up they went, over the sides of the tent and out into the field. Then I took 10,000 of them and threw them into a wash basin and I said those bees will come down where these bees are, and I guess there was about 5,000 people gathered around there to see whether those bees were going to sting me to death or not. But I had broken up the organization and then they came and went back into the box and then they put out some kind of a call and those bees up in the air, all working together, the same way that you should get together, came

together. I said to the little girl, wave your wand and these bees will all come right back into this box. When I had let them out I said to them, "I want you to go out into the fields and bring home some pollen," and they went. When they came back they got organized and got busy and I was careful with them from that time on. Of course, waving the wand had nothing to do with it.

On one occasion a boy held up his hand and asked me if I could handle bumble bees, and I said, "Yes," but if I could have read what was in the back of that boy's head I know I would have said, "No." I dont't think I would have undertaken an encounter with them for any money, except in the good old-fashioned way, with a paddle. I had a hive of bees that afternoon that for some cause or another I was unable to break up their organization and I was quite busy with explaining it, and finally I did get the organization broken up.

When my lecture was over I had practically forgotten about those bumble bees but the boys hadn't and they took me out there and there was a big crowd out there; so there was a big nest of these bees and they were ready to meet me more than half way. I saw a great big pile of stones around the nest and I asked them, "What's the idea of all those stones?" and the one who had asked me about it said, "O, we had one of the boys stoning them all the time that you were lecturing, and organizing them for you. We wanted them to be ready to meet you." I said, "That's encouraging; very fine! Thanks!"

Now when we want to break up an organization such as I am talking about we usually use a bee smoker and so I said to my little "fairy,"—she was right there with me—"Now, you and I are going to break up that organization." So I took my bee smoker and I said to the boys, "I'll break up this organization now, anyway, unless this pile of stones that you have been throwing at the nest have already broken up the organization." When I heard these bees roar I knew that the stones had had their logical effect, and so I piled away the stones one by one and reached into the nest among these bees and put my hands right over them. I made up my mind that I was willing to be stung but they didn't sting me—for a wonder.

Then I threw them up into the air and I said to my little "fairy," "Wave your wand after a few minutes and call them

back.'' But the boy said, ''You have been handling the Queens, that won't sting, and the drones, that can't. Let's see you try those other bees''—little chips that fly like lightning and sting like a bullet. I blew a little smoke their way and I heard them roar and I crept up, cautiously, on these little fellows, and released them, and then I said to the little fairy, ''Wave your wand again and call them in,'' and she did, and down came the bees into their nest again. So you see, I have even played with bumble bees but I didn't do anything with them while they were organized, and I couldn't do anything with a nest of hornets without giving them warning. You can't do anything with them unless you break up their organization.

Just in the few minutes that are left I want to tell you something about how the bees co-operate. I don't know how many of you farmers know it, but you couldn't sow red clover, alsike, nor any other kind of hay without their helping you, and have it grow. They haven't any idea of helping you. They think they are helping, not you, but themselves. They know that they must carry home pollen for their baby bees, and in the very doing of that they fit into the wonderful co-operation that we find in nature . We find that plant life and animal life work together.

The more I study into these things, the very secrets of creation, the more I see how wonderful they are. There is in nature some provision whereby a bee that goes out to visit one kind of a flower and gather that pollen will only visit that kind of pollen for that trip, whether it be clover, pear blossom, peach blossom, apple blossom or what not.

It seems to get its orders to visit just one species and they will only visit peach blossoms, sweet clover blossoms, or whatever they get started on, and they go from one of these blossoms to another and keep on until they have their load and they bring it back to the hive. In the meantime they have fertilized those blossoms which they have visited. There again you meet the old lesson of co-operation among the bees, again. He comes in and kicks that pollen off his feet for another kind of bees to work on and they make it over into a milky food for the baby bees to grow up on. Some people say, ''The bee doesn't know why he does all of this; it's instinct and that's all.'' How do you know? How can you tell what a bee thinks. He

is co-operating with you and helping you to get more and better fruit! If it wasn't for the bees you would soon be out of business.

You know, out in Medina, Ohio, there are some 50 acres of orchard land on one place and out of all that acreage they didn't yield any fruit that amounted to anything and so finally the orchard was offered for sale and a man who was an expert fruit grower bought it, and so, piece by piece, he began spraying and trimming in that orchard until he had it on a good basis as to appearance and health, then he came to me and said he wanted to put some bees into that orchard and asked me how many bees he needed. I said, "At least a colony to the acre," and so he got them and we placed them there in this orchard, which had never before borne anything but worthless apples, and not many of those, and the first year that same orchard yielded 11,000 bushels; the next two years 12,000; the next year 8,000, and last year 13,000.

At the time of the war some of you men knew to the bushel about how much of a crop you were going to get. Then it commenced to fall off, for some of you, and others are getting more. Your red clover, for instance, some of you can't raise red clover so well as others. If I had time, I could show you just how the bumble bee, that naughty boys have been killing and tormenting for untold time, does take care of you on that. They have long tongues which are just right for that kind of work and in getting so interested in their honey making proposition they get enough dust on to the clover to fertilize it, and when there is a dry season, so that the bees can get busy and pollinate it, and therefore I am putting it up to you to save the bumble bees, for they are our best allies. They are splendid about co-operating with us.

Now I have told you how they co-operate. But in some things they won't co-operate. They won't co-operate worth a cent, for instance, when it comes to the mother-in-law and daughter-in-law proposition. They won't co-operate if there are two queens in the same hive, at the same time. But mother and daughter do co-operate, but the bees won't co-operate with either of them worth a cent. In that respect they agree with the human family, because, you know, the mother-in-law and daughter-in-law proposition doesn't work in the human hive.

Then there is another thing. Bees don't like the divorce proposition. We have tried to make them take a new queen but we have a squabble with them every time we try it. They simply won't have it! If we succeed in changing the queen we have to smoke the poor fellows and get them into a stupor and then change the queen and then they don't know any difference.

So you can see how they stick to the very basic principles of life even better than men live up to them. All of us could learn many lessons from the bees, I think.

Then there is another thing that they do. I have watched bees in the window of my hive at home and have seen the building bees build their comb. Every bee must work or leave the hive, in a certain, definite way, and they must all work together. You will see one bee put it upon a comb and pinch it together and pretty soon you will see a little piece of comb starting out and it gets larger and larger and then they begin to put their pollen in it. Then they begin to raise young bees. There we have the part that the queen bee plays in the drama.

We have the queen bee, the mother of all the bees, and if all of you poultry keepers had hens that could lay eggs as fast as a queen bee, you'd be millionaires. Some of you, I think, would like to do it. I have heard people tell about crossing a lightning bug with a bee and all that sort of nonsense, but I haven't heard it suggested that a bee might be crossed with a chicken. I don't think that could be considered feasible. (Laughter). It probably wouldn't be worth while. But, in the height of the season, good queen bees will lay as many as 2,000 eggs a day, and if any of you ever happen to come to my place in Ohio at the proper time I will show you her majesty in the act of laying eggs. She is like some people in the human family, who like to "show off."

If she thinks she has an audience, especially, then that queen will start off. Egg, egg, egg, egg, egg, egg, egg!! You wouldn't think she could do it. Then there is a group of workers which also have a job. They take care of that crop of eggs. They feed it and build it up and then when it gets up again to a certain size they put it into a cell and leave it there for 21 days. That is identical with the time it takes a chicken to hatch, and then at the end of that time it comes out of the

cell and rubs its eyes, and nobody pays any attention to it, but when it gets a little older and gets a little food it starts growing and that food will bring wonderful results. There are more bees then, and if we will co-operate with them by having say 100,000 bees in the orchard and in the field we will find that our products will run into the tons and into the carloads. We find that the bees co-operate surprisingly well in the West on that sweet clover, once thought to be a weed. I am going to tell you a story that I didn't tell the beekeepers. Up on the mountain sides of one of our states I met a man who had a good sized orchard and was producing an average of 1,000 pounds of honey to the acre. He had a hundred thousand bees. That was out in the west where they understand better than we Easterners, the raising of bees and how to work it out successfully.

You remember the condition in which the West was a few years ago. The farmers couldn't sell their wheat, or anything of that nature, and some of them didn't even try when they found out how things stood and in many cases the banks went ahead and foreclosed notes on them, but they investigated. They wanted to see what was the matter.

Then the county agents and the farm bureau workers commenced to help introduce modern methods of agriculture, bee culture, and the like. Then this bill was introduced into Congress, the Lever Act. I know how that was because I had something to do with it myself. I went down to see Senator Lever, the author of that bill, and he said that he wouldn't see me, although the Assistant Secretary of Agriculture and our Congressman tried to work it for me. I went there and talked to his clerk and he wouldn't let me in, so I sat down there and I told the clerk, "I'm going to stay right here on the job until he hears my message." I sat there a while and pretty soon there was a stenographer came in with a pencil in her hair and she went up to the door and knocked twice, then a pause and another knock. The door opened, and I was right behind her and went right in with her. I got into that office. I said, "I want to see Senator Lever." He said, "I can't see you. Who are you?" I said, "I represent 1,000,000 beekeepers in the United States and they have something to do

with your election and we want that law fixed so that we can increase the consumption of honey." Then Mr. Lever and his clerk commenced to consider the matter and they walked back and forth, and pretty soon he said, "Let the man talk with me." Then he added, shouting at me: "I won't give you a —— second over one minute." I said, "One minute is all I want."

And then he sat there and listened to me for two, five, ten, fifteen, even twenty minutes and I think he understood things in a different light. Some time after that, I had the satisfaction, then, of seeing that man get up on the floor and argue against everybody who made a motion to lay that bill on the table, and when they asked him where he got his information he said, "Mr. Root said so." Now I am proud of that Lever Act and my part in letting Mr. Lever know what has been done about that co-operation in the human hive, of bee producers.

Then there is another kind of bees—we find them at the entrance of the hive fanning the foul air out of the hive and keeping the queen and the baby bees comfortable. When the Queen lays down on her job they pick her up and put her out and raise another. They don't waste any time planning or talking about it. They believe in action. They don't complain about things. The make the best of them and do their best to remedy them.

I notice a lot of people talking and complaining about the weather but they never do anything about it. They move around a bit. The bees do the same. But they never complain. That is one thing about the bees that is better than the human race. Another thing, when the Queen gets started on the egg laying proposition, the old lady gets so busy that she can't do anything without co-operation and so these bees stand around and fan her. You watch them and you will find that they are blowing a current of air onto her.

"Busy as a bee." Some people say that there is nothing to that. They point to the fact that the bees rest all night. Well, that's perfectly natural. They do the same. Then they calmly misquote a recent report from Washington, D. C., to prove their point. They claim that it has been pointed out that bees

loaf and waste a lot of time. But part of the paragraph isn't included.

They do loaf when they get tired. And you too, know, that if you get tired out the best thing you can do is to rest and you can then go on and work better.

Of course, bees rest a little while at night. But even then, young bees and old bees are at work, fanning out the surplus of water which they incorporate into the honey; and then after they have filled up the comb, we go and rob them of it. That's the kind of co-operation we give them.

If a favorable occasion ever arises for you to study the organization that goes on inside of a bee hive you will find them all agreeing with one purpose; no quarreling whatever. And when we don't work in with their plans right they let us know right away that we have got to keep our place.

I know bees, and know them thoroughly. My earliest experience with bees was 63 years ago. I was one year old then and I crawled away and met those bees. You can do anything you please with bees, but you must co-operate with them, in their way—not in your way. (Applause).

THE CHAIRMAN: Three years ago, the Southern group chose me as their representative or director to represent them in the national organization. I had met some of those directors, just casually as you would in coming to a place where there are people from 35 or 40 states, and so when I went there I had a rather funny kind of feeling when I walked into that directors' office the first day. I didn't know just what I was coming up against. But then I saw the face of a real kindly old gentleman and there was a vacant chair right along side of him and I didn't take very long to find out that that place was mine. And ever since then we have been good friends. Now, we have with us today, Mr. Samuel H. Thompson, the President of the American Farm Bureau Federation. (Applause).

ADDRESS

SAMUEL H. THOMPSON,

President, American Farm Bureau Federation.

Mr. Chairman, Ladies and Gentlemen:

In thinking over how I come to be here today, I can't help but thank our good friend here, Mr. Stewart, and congratulate him for being not only a good co-operator but a persistent

worker. When he invited me to come here today and address you, I thought that I couldn't see my way clear to appear before you on your programme this year, but because of his persistence I finally revised my schedule so that I might be here. And now I am glad that I'm here. I am glad that I have the opportunity of coming to the State of Maryland.

I want to state that I, too, remember pretty well, when the director from this state came into the Farm Bureau offices. As we have studied farm problems together from that time on, we may have had honest differences of opinion but we have always worked together to try and get the best solution of those problems.

I was very much interested in the co-operation that we have learned about from the speaker who has gone on before, and I was just wondering if we couldn't learn some pretty good lessons in co-operation from the bees. I really wish that if it was necessary to learn about that co-operation they would even sting a few of us a little more than they have in the past and jog our memories and ambition a little, because we feel that a lack of co-operation and understanding has caused a lot of difficulties which we are now trying to solve and trying to overcome.

I want to say that I, too, think that that Smith Lever Act was a good act and I think there was a great deal in the wisdom of some of our statesmen who have gone on before, when they emphasized one thing that co-operative attitude was the need of agriculture. They recognized the fact that the farm people should be better organized, and that, because of the lack of co-operation on their part they have suffered, and so I find that there has been a provision made by wise men for us to follow those who have gone on before,—often quite a long time before, even as far back as Abraham Lincoln's time, and I think we are coming into organizations better, now, because we are getting to recognize the principles by which things are done, by every other group except agriculture. We are beginning to learn the advantage of organization.

I know that our colleges have extension courses and through their educational work by their teachers have done a specially splendid piece of work for agriculture. It would seem that if

we all assist and everybody would get together and help there wouldn't be much left for us to do, but we believe that even with the splendid work that we have been doing, and with the co-operation of other organizations with the farmer who is beginning to come up and ask for service, which is better than forcing the service on to the farmer, we have plenty to do, yet, for everybody.

So I want to speak this afternoon for the hearty co-operation of every farmer in the state and at the same time, please remember that I'm not asking you to stop co-operating with the county agent. You'll need to co-operate more than ever with him, because I do believe in the County agent system. It has rendered a most valuable service to the agricultural industry in this country and will continue to render that service in my opinion because the service will be based on actual experience.

After all, farming isn't all learned in books, and the thing that we most need to know is how to serve each other best—the things that we actually pick up as we go along and approach the future. We are looking forward to a better policy and better co-operation in the future and a broader outlook on life. We are trying to give a broader usefulness to our association and help the farm people more and more in the same measure that has been applied all the way through life in this nation. Then we will begin to grasp our full measure of opportunity as farm people to place ourselves along side the others who are working for the farmers' interest.

The Farm Bureau Federation and the County agent's work are not in conflict. That is exactly why they can't be independent of each other to a larger degree than they are now. It is true that there are certain factors in this work for which I am here to talk this afternoon, besides the features I have already mentioned. I know you people are interested in what we are doing. You have probably asked yourself, often, what good does it do anyhow.

Then after all, when you have considered it all the way through, and its proven results, you come to this conclusion, that it is cheaper to belong to it than it is not to belong. It is like a lot of other things. It costs more if you stay out of it.

It is a good deal like the matter of good roads, or of having good streets in our cities. It is much like a lot of other things that we have which are improvements but to which there has always been some opposition because of the fact that they cost a little money. Our progress is marked because it has been uphill.

It has got to overcome prejudice—the prejudices of the people, that it is trying to serve. I can stand all the criticism we get. I come in contact with it, and it is a difficult matter anyway, to be perfect. That is just why we need your help and co-operation. It takes the best that is in all of us to get behind any progressive movement and carry it through to a finish. Now, why do I say that? I am not here to harp on the achievements of what has gone before but I am bound to say that it stood for the best in every community.

I sat, the other night, at a banquet where they had the master farmers of Illinois to entertain. They elected or selected a group of these men who might be called the "Master Farmers" of the state and they had to pass a rigid examination as to their standing as home makers, good men in the community, and every attribute that went into their life in that community had to be checked up before they could be elected to this group of Master Farmers. I helped in that scoring because I wasn't even in the running.

As I sat there, do you know what came into my mind? I thought, I'm mighty glad that I'm not having the other fellow scoring me on this, because I would have hated to compete with them. I want to say to you that these men struck a mighty high batting average. It means something to have some public-spirited citizen express himself for better schools, better roads, better churches and all the things that go into that community's life.

There was one thing that was particularly striking to me. This contest was conducted fairly and all had an equal chance. In every single instance the men chosen as master farmers were Farm Bureau members. Then I found out that the same thing was true in Ohio, and in Indiana. I talked with the master farmers from Ohio and they said that most of the farmers in their state who had qualified were Farm Bureau members, also, and then I thought,—after all, an organization

composed of the best men in the community can't fail. It will live on and on and its influence will continue after we have gone.

After you read the reports of the farm bureau members who have been carrying on these projects you would agree with me. A very prominent Senator in the United States Government said to me, "This is the right kind of a report. I have got more respect for the farmer than I ever had," and in Illinois, Indiana, and Ohio the people have already taken that step and others will probably follow; but I just wondered in this work how it was, as I looked in the faces of men and women everywhere, all over the United States, in the North and the South, the East and the West, and the middle west, groups just like this, all running together and unselfishly giving their services—unselfish enough to give it their time and thought and that is what is demanded by any organization of the industry in which we ourselves expect to make a livelihood. They are prompted to do the thing that is going to help the industry and vocation in which they are engaged. That is service plus.

It is things of that kind that make America great—a real interest in the other fellow and I don't believe that you are going to fail in your farm bureau work.

In regard to my own home state, I expect to address their annual meeting in a few days, and I was just wondering what I would say that would be of interest to these people who knew me so well. And then I just thought, after all, is it the leadership of the Farm Bureau men that is making it count for so much. Then I began to think, after all that is the picture in the townships and in the counties. I know it is so in Illinois and Maryland, anyway. But the members are the essential part. The leaders would have no influence if there were no followers. It isn't anywhere nearly all because of the inspiring leadership that we have; it is rather because of the interest that the people themselves take in it. They get out and work individually for the benefit of the group which is necessary for the success of any organization.

Here's to the man or woman engaged in the agricultural industry who is willing to come out and help us form a sound policy so that we can approach the future more confidently. So I began thinking over my experience in the eleven years'

service I have given and I again thought of the contributions that came from men back on their farms who had left their work and given their time to the interests of the Farm Bureau. In looking up that matter some time ago, I found that fourteen men, directors from all over the state of Illinois, had gathered once each month, and I found in checking up that each of these men gave 1½ days of their time, without pay, for a year, with an average of 90% attendance. And tracing the matter further, I found that there were 12 men in every county who gave a day of their time every month.

Then I thought of when we put on our organization campaign that has been almost entirely sponsored by the individual members back in the townships and counties. That was under the volunteer plan, where they voluntarily agreed to go out and sign up their time. When I added up the number of days that were involved I found that that band of 200 men in every county went out and gave their time for 1½, 2, and 3 days. They took that time to go out and talk to their neighbors and try to get them to join the organization, and when I figured up all that time, as I say, and took into consideration the additional fact that they spent their own gas, wore out their own tires and their own machines, I was astonished. I found that it would take one man 52 years to do the work that these farm bureau men had accomplished. I am not saying that the State of Illinois is distinguished from other states by that. I think the same thing is true in every state in the Union.

I feel that they are acknowledging the efficiency of our organization and the necessity of strengthening and upholding that organization and the people are making no mistake. It has been responsible more than any one thing for this, in that it has been responsible for, and caused men and women everywhere to think and you can't tell me that you can have 4,000 or 5,000 or 10,000 thinking men in a community and not have the life of that community be influenced and it will reach into your cities and towns of all the states.

Today, the agricultural problem that we are setting about is the cause of a great deal of economic distress and is all because of the fact that they have been willing and anxious in the cities to take our country boys and girls to build their

great groups. They are organized every one of these city groups. And when we organize we estimate that everyone will have money enough to live on either city man or farmer. We have always stood for this co-operative marketing proposition.

We believe in the farm organizations and in the different special branches which co-operate with farmers in some special branch of agriculture, and we sympathize, and are willing to co-operate, with anyone who is trying to organize the farmers of the nation.

I want to tell you that I am glad to be able to say that we are willing to stand side by side with your organizations and in fact, we want to keep on speaking terms with you so that there will be no opportunity for the farmer back home to say that he is not helped and co-operated with. It has been a very hard matter to get a lot of the farmers to see the necessity for this co-operation and we have put forth a lot of effort in order to get the great masses of the farmers to standing up and believing in organization and in explaining to them that it is only as we get together to work out and solve these problems that we will be successful.

I was told when I came in here this afternoon, that I wouldn't have to read my address. I very seldom have had to reduce what I had to say to manuscript in the past because I do not profess to be a public speaker. I just talk to the people. If you have got a set address you have got to get through it and adhere to it.

Therefore, in making my little talk to you, I am presenting to you conditions just as I see them, and just letting you consider a few things that I have thought of and a few things that I have on my heart. I am just calling up a few matters that I think need attention at the present time. I wish I could talk to you about the Farm Bureau all the afternoon, about the transportation problem and the tax problem and the other problems that confront us in every state of the Union. I would that we could get from every state the co-operation that we are getting from some states whereby we could get a more active list of members with the burden more equally divided so that we could all work together and accomplish a whole lot more than we are doing; I wouldn't try to go out and talk to

you about your community problems because that would be putting myself at a tremendous disadvantage not knowing your problems so intimately.

But I am going to talk to you this afternoon about some of the things that I think are in the forefront.

Now, I am sure you are all interested in efficient production and so am I . Also, I am sure that you are interested in co-operation. We are getting the best men in the nation to help us solve these problems. We have a man that directs our marketing department of our organization and you should know him even if you don't know him now. He is just about as clear-visioned and high-minded a man as any man in the United States. I don't speak in any roundabout way and I want to say that Frank Evans, the Marketing Counselor of the Farm Bureau is that man. In all my experience, and in all the time that I have been coming into contact with men I have never met or come into contact with a man more absolutely and scrupulously honest and straight and more imbued with a resolution to do the right thing at all cost, and I know of no man that is more untiring or that is so infinitely unswerving in his desire to perform more service than he, and so I commend him to you in your co-operative marketing work and if you have got any problems along that line get in communication with Frank Evans. He will solve them for you if they can be solved.

Now I am going to say a little bit about some things that some people criticise the Farm Bureau for. One thing, that is raised in opposition quite a lot, they say "We have already got too many laws about different things right here in Maryland." I agree with that statement, but I want to say this, that so far as too many laws are concerned, there is this situation, that we have got too many laws UNENFORCED, obsolete in their nature and inapplicable, and we haven't enough laws to meet 1927 conditions and solve problems, that we have to deal with. I want to say, before I take up this subject that I don't want you thinking that I object to co-operative markets. I do not object to any more efficient plan of distribution that anybody can bring up. I believe that we are going to take up and talk about this topic before long.

The best answer to that argument is the fact that for the last five or six years—particularly the last 5 years we have held that there is something wrong—something fundamentally wrong with the agricultural situation and we have continually felt that something ought to be done along that line and it hasn't been just a passing feeling either. It has been one of deep-down source from long experience with farming and farm problems. I look at those things from the viewpoint of the farmer because I have seven children and all of those children are on farms, and so it is to my interest to see that they have a fair chance. There are not many of them, of course, compared to the vast number of farmers in the United States, but they are connected with the farm and farm people. While I have some interests on the outside, still I am primarily a farmer. And, from the very deep experience that I have had with my own personal problems and also on the other side of the desk, with my experience as a business man, it has come pretty close to me that there is something wrong—something fundamentally wrong when the same number of farmers as compared to those who are engaged in other work and going through more self-denial than any other group I know of, fail to get their fair share of the National income. Now, let's see what the Industrial Board says about it. You all know that the Conference of Industrial Boards is a group of independent business people, who conduct these investigations for certain purposes which are useful to themselves, and I think coming from an independent group it may have more weight than anything I might say about the matter personally.

I wrote this about ten days ago and then when I got this report I had to get the stenographer to change it to "80" instead of the way I had it originally written.

(Reading). They go on further to say that there has been a tremendous increase in purchasing power of everything but the agricultural dollar; that that has increased from 40% to 70%. But that in the non-agricultural dollar there has been a greater increase. Let me read what it says about that. (Reading).

I want to say to you that it is time for serious consideration in this great country of ours when nearly 1/3 of the popula-

tion is only getting 7½% of the National income, and it won't take long to find out what is at the bottom of the trouble. I have studied it up one side and down the other.

This morning when I came here I went to the hotel and asked where the convention was and someone said downstairs, and so I went around there and found your president and he took me over into another building and I was told that there was a dairymen's meeting in the room I got into first. He said "It is to be in this building somewhere" and we were down on the second floor and they were up on the third, so we didn't get together. But I just concluded that it couldn't be a dairymen's meeting, because around Chicago I know they hold them where you could hear where that meeting was being held any time during the session, for two blocks. (Laughter).

He said to me that there was something about the surplus of milk that was troubling them, and I thought, "What am I getting into?" I had heard so much about surplus everywhere I go, but as I listened this turned out to be a very good surplus—a money surplus which they have provided in the operation of this splendid co-operative, and so that gave me the best feeling that I have had in a long, long time. I thought it was such a fine kind of a surplus to have, and that it would give them such an honorable standing in the community. But there are other surpluses that aren't making me feel quite so happy.

There is a lot of difficulty comes from the fact that we have in our plan of distribution left out the farmer himself. I believe if the manufacturer should apply the same means to distribute the product of his factory as the farmer has done in the past, that he wouldn't be so much different in condition after all from what the farmer is. Then, too, it has come from a number of other reasons, because there is no space left over on the other side to satisfy you with the increased values and standards of community life. That put the proposition fairly up to you. You were not getting the full return at all—all the years when that was your capital investment. You should keep in mind that the sale of the products of your farm was the main thing.

The sale of your products didn't meet up to your expectations. You can't expect to get anywhere with no control only on the production but not on the distribution. Not with all the power of production that we have in the country. Power of production is one of the finest things in the world for the efficient. The inefficient will always have difficulty. It is almost impossible to produce blindly and that is just what you have got to do when you have sold blindly. If the manufacturer didn't know what it was and didn't have a knowledge of the value of bargaining power in distributing his factory product, he wouldn't be any better off than the farmer is. It will pay us to study and try to apply those principles because if we do we will soon get to the point where we can apply the same intelligent distribution to our product. So we find that we have had a lot of difficulty in the proper and intelligent distribution of our crops and that is the reason that the National Income stands where it does today. It is because the producer hasn't got anything to say or very little to say about what the price of his product is.

You have heard that we have been standing for some things that are tremendously radical, and some things that were never heard of before, and a lot of things that have been heard of before and were well founded, and a lot of things have been brought home to the farmer that probably never would have been so well-known if he hadn't had such a great need to know more about his own organization.

Through the study of economics we have come to some pretty definite conclusions about some things and we are therefore trying in our weak way, to give a solution. Now the solution seems to be fundamental—Producer control. Anything that doesn't give the producer control over his product or delegate that power into the hands of the producer is not equitable and it isn't going to help the farmers at all! I don't care if you loan the farmers of America a billion dollars! I want to say to you that this country has come to a point where it can't loan money to farmers and co-operatives much differently from how any other banking institution is compelled to do it. It is true that you need the credit to handle your business. It is also true that we have been improving the Bureau so that it is more applicable to the farm and its needs.

That is what the purpose is, but even in that you are going to have to recognize the sound principles of finance as applied to these credits, so that you are fully grounded in that co-operative marketing problem as well as in any other. We ought not to expect it to do the impossible. We can't expect that we are going to find it doing things that it can't do. We ought to recognize the fact that here is a great fundamental principle, and it is in its infancy.

I remember that we talk about our industry being an American industry, and the farmers in Europe would wonder at the wonderful progress that we are making in our industry in America. It is an American infant and we should protect our industry in America. When it was a weak infant we applied the principle of protection and now it is being continued even when we are strong. The American farmers have the intelligence to see this and to pay American wages, above the world standards.

Protection is a wonderful thing but we don't get quite enough of it even yet. We have applied it to finance and other things, through the Federal Reserve System. When that American Federal Reserve plan was first drafted it didn't fit in as well as they thought it should so they amended it—and they amended it, finally sixteen times.

That reminds me of the statement which I read in the paper last night to the effect that the Federal Reserve Act has stabilized finance in the same degree as the protective system has stabilized industry. These principles applied to our gross production will make any industry, even agriculture, prosperous. Only by maintaining American labor standards in our industry can we get anywhere in the world. We have got to treat the farmers square and give them their efforts on a par with any other industry, if you please! Now, then, we have applied that principle to all of our industry.

I am not bitter and I am not complaining about what other people have done, but I am going to show you, if I can, in my weak way, that we have come to the stage where crops should be under the control of the farmer, as to their sale and we have got to put into the hands of the farmer, strength, and give him the help that until such time as co-operative marketing

is strong enough and until it comes to be accepted as a legitimate plan of distribution in American markets.

I verily believe that we are going on with the co-operative business as rapidly as is possible, but it will take time to do that. That is a tremendous undertaking because at the present time all the farmers' products are handled outside the industry, entirely. All outside industry is surrounded by rules and regulations concerning their handling of the product so that the farmer can't dispose of only a certain amount, so that there may be a stable level maintained by the merchants. Whether the farmer makes money or loses doesn't make any difference to the commission merchant. He gets the same commission, and the railroads get the same transportation charges. This surplus helps everybody but the farmer. It makes a lot of business and a lot of work for the commission man, and a lot of freight handling for the transportation company. It even acts as a nourishing pie for the people, for which they pay ample prices, so that it is a good thing for everybody except the fellow who happens to have raised it. The man who is doing his farming on one line, namely, the staple articles of the marketing business doesn't benefit by it. So that it does look to me like this is a national problem.

We have come to the conclusion that that is the prinicple involved in legislation that is concerned with this problem. We will find that the solution of this problem is necessary before we can get the relief we are seeking. You may not like the McNary-Haugen Bill. I want to say that I don't care whether it is the McNary-Haugen Bill or what it is, just so that it gives producer control. Nothing else is ever going to give the answer to this problem, because you can't stabilize that surplus in the United States of America for speculative merchandising. It doesn't bring the answer to this problem. It goes up and down. It takes the joy all out of life, because if it stabilizes at a low price, the farmers are going to lose everything they have. You are going to have to recognize producer control, if we are going to get the correct answer to this problem.

I well remember that that was the first thing we asked for in our legislation.

We have recognized the principles of that right even in regard to transportation; that we should have some say about the transportation of our excess products and then subsequently that was determined against us on the basis of "protecting" the public. But it was really for the purpose of cheating the public.

What we have got to do is this; it was said one time, "You have got to have a yard stick with a proportionate ratio to the price," and I got a lot of this gray hair just because we tried to follow that advice three or four years ago. I want to tell you that we have got to do the same with agricultural products as with the manufacturer's products.

I want to say also that you can't catch anybody on that matter of the 20% (or $20,000,000) decline. (*I have a form here which resembles either of these numbers). That was an emergency measure that I have just referred to and we think it was a mighty good thing and we have been trying our best to get this principle ironed out and worked up so that we can present it to Congress. The first day's hearing takes place today in the Agricultural Committee, and we are going to testify up there today on this measure. I want to say that it does nothing more than we have tried to get all along for the farmer—and not so much. It gives, really, no more power to the farmer than he has already. If we would go into the co-operative marketing proposition we wouldn't need this bill. We ought not to have it. It ought not to be necessary to sign up 6,000,000 farmers in so many different communities to get an answer to this problem, in time to stop this decline and in time to bring agriculture to the place where it starts to get its fair share of the income of this country.

We were told when we came down there before, that this was price-fixing. Now, then, that is discarded. They have eliminated that feature of it and have added the tariff feature to take its place. That has also been eliminated, lately, and what they have done is this: They have got a provision in the bill which vests in this Board—this agricultural board—the power to delegate to these co-operatives the right to bargain at a fair price. Now, that is just exactly what it does. It seems to me that it is striking at the root of the matter. If we get them to pass this measure we may be back again. If we do we will be

doing nothing more than other people have done and if they will do it, we will. I want to say to you that we were told four years ago that agriculture would come back on an equal basis with other groups which were then recuperating from the effects of the War. That we were inside the pale of protection, and to just go home and forget about it, in spite of the fact that you read just a few days ago, or I did, anyway, that we have got $1,448,000,000 less than we had last year.

I want to say to you people that we do need all of our agricultural element co-operating with us in order to do this thing properly. There will be some selfish motives in spite of the fact that society as a whole should be squarely with the American farmer both in the things that he is doing for the advancement and protection of the interests of the consumer and in the citizenship that he is contributing to our national life for our industries to live on.

These great thinkers have good, sound judgment—these great statesmen who visit our country from foreign lands and say that we have the greatest potentialities of any country in the world in the line of agriculture. Now what are we going to do. Shall we see this old agricultural industry of ours, which we love, keep on declining or shall we apply the prinicples of good sense and sound thinking to get the right solution of this problem.

I want to say to you that what we have been endeavoring to do is to get the support of the farmers—the people that we are trying to benefit. And we can do what we are trying to complete if we will all stand together and work together, and commit ourselves to the task.

Some may call us unsound and radical, but if that is unsound or radical, I issue a challenge to the people who stood up there in Washington, D. C., four years ago and told us, they promised it to agriculture, that we would come back in a few years on the basis of equality with other industries according to the laws of economics.

They told us that our labor was hard and that we had done it conscientiously and that our standing there was very high. Then they tell us that this is unsound after they have had ample time to do something for us.

2,400 banks don't fail here in America unless there is something wrong. Even judging from what happened back in 1923, it is evident there must have been something radically wrong, with this situation. I don't think that the legislature can cure these things altogether, but it can do for us the same things that it has done for others. We will have to depend on our own ability, but there are some things that we can't do, ourselves. We can't do anything that comes into conflict with the present economy policy of the government under which the others are getting a big return, and we can't even get a square deal, which is all we ask for for agriculture, and for the farmers of this country, so that we won't have to continue to take the best boys and girls off from the farms and send them into cities. Because, if you have such a situation you can't say, in fairness, to your son or daughter, "I think you ought to stay on the farm." We are trying to instill that idea into our children and find a way to make it fair for them to remain on the farm. We are doing our best in a small way to bring that about.

I thank you. (Applause).

(Singing, by the Audience.)

THE CHAIRMAN: Ladies and gentlemen: It now gives me great pleasure to introduce to you, Mrs. Sewell, and I can assure you that you're going to get a real treat.

ADDRESS

MRS. CHAS. W. SEWELL,
Director Home and Community Committee, American Farm Bureau Federation.

Mr. Chairman, ladies and gentlemen, and my friends in Maryland:

I didn't believe that I would get back here again, right away, after addressing you so recently, because it was my great pleasure to come before you two years ago. I have always felt that it is a very high compliment to be invited to address a meeting a second or third time. That is one of the things that are unusual and you take a big chance when you, of your own volition will ask anyone to come back to you a second time.

Anyway, I think that that is a splendid compliment to me. I want to pay you a compliment, too. I think that the address we heard this afternoon on coöperation was a most splendid one! Speaking of coöperation makes me think just a little bit about something that happened in New York back in the days following the Armistice, when a boy was blacking boots and a great big Hoosier came up and asked this little boot black to shine his shoes. Now, somehow, out in Indiana we folks all have big feet! He saw this great big pair of army shoes staring him in the face and he said to the little boot black next to him, "Bill, loan me some polish; I've got a Government contract!" (Laughter).

Now, this afternoon I am going to discuss with you farm men and women, or women and men, or both, some of the problems confronting the farmer in this country. Everything in life depends very largely upon words—you may make words say almost anything. You may make them mean something serious when you say it in words that might be humorous.

President Thompson's words I think have had a great influence on us this evening. Everything depends in the emphasis that you put upon it and he has emphasized very nicely the work of the Farm Bureau. Everything, words or acts, depend for their final effect upon the emphasis that you put upon them.

I have looked into the great mass of historical data in preparation for this occasion and tried to find a great man in history on whom no woman's successful inspiration had had any influence. I examined into the history of successful men, and then I studied the influence of their mothers, etc., for the great men in matters of history both sacred and secular, and I found invariably where there was a great and noble piece of work done, or an outstanding man, there was always a woman who had a great deal to do with his success, in one way or another.

Yonder in the Capitol at Washington, almost within the sound of my voice we have men representing or misrepresenting the people of the nation in Congress and many of them are doing a great piece of work, and we call it "a man's work" and yet back of each is the wife or sister or daughter

of each, who will perhaps be the reason, socially speaking, whether they will be returned to Congress or not, or even elevated to the Presidency.

I remember that following the National Cattle Club show which I attended a few weeks ago in Chicago I remember the young man who had won the recognition of the society for the outstanding drove—the master drove—he was a splendid, stalwart young fellow from the State of Washington, and I thought, here's an example of individual effort on the part of this boy; here is the emphasis on the man, and then the thing that happened was, I saw him when he started to broadcast over the microphone to millions of people the story of how he had achieved his success, and he opened his message by saying: "The one to whom I owe the most credit for my achievement is my mother who gave me encouragement and told me many things which made it possible for me to win this award, and when things went wrong she would say to me, "Never mind; it will all 'come out in the wash.' "

I remember that several years ago the men used to take all the credit to themselves as being so clever, but it wasn't any truer then than it is now.

I would like to take you with me this afternoon away from Baltimore, away, perhaps, from Maryland, and into the bedroom of your grandmother. I like to think of the bedroom of my own grandmother and there was one piece of furniture that stood there that always had a strange fascination for me—that old black walnut bureau. It was my delight as a small girl to have my grandmother allow me to look into the Bureau—the bottom drawer—and that bottom drawer held a sort of foundation for the whole household. It was very interesting to smell the sweet odors that strayed out when that drawer was opened. It was scented with lavender and old rose leaves and then she made up many other curious little things that were of great interest to my childish eyes, that were found in that bureau drawer.

Then in the drawer above were my grandfather's Sunday shirts but with no stiff collars and then came grandmother's lingerie, some of which had been in use for years but was still comparatively new and fresh looking and they were called

into requisition whenever they went to Church which was practically every Sunday.

But in the little drawers at the top were many things even more interesting. It is those two little drawers at the top that I want to call your attention to just now. In these two small drawers were the keepsakes,—love letters that my grandfather wrote my grandmother and they were real love letters, and then there were letters that my grandfather wrote his people from the Civil War and then there were little pieces of cloth that she had kept from the baby clothes and there were baby shoes—poor little shoes that were hardly big enough for you to be sure that they were shoes at all, instead of fairy slippers!

In another corner there was a little bag of cloves and also, I remember—I'll confess it for grandmother—there was a bag of corn starch which my grandmother used to powder her nose with, before she went out anywhere.

She also had a big, beautiful fan, a satin fan, and I might tell you of the numerous times when I used to wish to be a very fine, fashionable lady and sit at some great affair with that great satin fan sweeping to and fro, but I shall, I suppose, never realize that part of my old, childish ambitions, and that bureau in my grandmother's room was just like what the modern farm bureau is today: on the bottom are the foundations—the legislative business, etc. Then comes the practical farming side of it, and then at the very top are the home and community features of it. It is those things which, logically enough have to do with our higher ideals and our more ambitious desires. Our ideals for the advancement and benefiting of mankind come in at that point—the things which bind us all together.

It isn't always the wealth of the world in which we are most interested. I remember one time attending the commencement exercises of Depew University and there was a certain bishop there, a bishop of the Methodist Church and he asked permission of the president of the University to ask them some questions on history and it was admitted by all that they were an exceptional history class and so he began a deliberate effort to confuse and embarrass that young class of graduates. He asked them—who was the richest man at

various periods of the earth's history and when it came down to finding the answers to that question-series, many of them puzzled even Robert Morris, a very able historian. History isn't always most essential in regard to the very things that we put the most emphasis upon, but it is often the sentimental, if you please, which is in every man and woman here this afternoon, and anywhere in the world.

In that long ago day when the American Farm Bureau had held its first meeting—its organization meeting, they felt that they had begun the greatest period in the affairs of an organization and yet just before the American Farm Bureau in Chicago last month it was reported that they had this immense membership and their work was increasing in scope all the time and they were producing good results everywhere they worked.

Now, as I say, in preparing for this occasion I have tried to find something that the men did all by themselves. And at this meeting they said that they welcomed the women. They said, "We welcome the women to the councils of the Organization." And yet I can point out the time when that same organization said, "They don't know what they want; they bother us, because it takes them too long a time to decide or make up their minds on anything. They are indeterminate." I am not defending women. I am going to say that which George Eliott said, through an old woman in one of her stories: "I am not defending women; and I am not saying they are obstinate at times; but the Lord Almighty He made them that way so that they would match up with the men!" (Laughter).

I am just bringing you these statements for what they are worth. In the farm bureau proposition it is just as it is in any other well-regulated business—the women sometimes have a real contribution to make to the affairs of any organization. Then, reading on a little further in the history of our organization I read where after the women had done the things that made them real members of this organization by accepting them the men have found real success awaiting them in this great work, which they have a perfect right to expect and they are receiving the coöperation of the women, and why?—because the women are as much committed to this task and

taking part in it as earnestly as are husbands, sons, fathers or brothers, to do this piece of work successfully. When we all take hold of it the women are going to do a big share in the carrying out of this organization's work.

A little woman from Missouri said to me in Chicago last month—"I believe that this organization will live because it has begun right," and then she pointed out to us that the only thing you can build successfully, from the top down is a grave. You don't do that with anything else. And if you begin at the bottom and build your structure upward it will go on and on and on and the structure of the American Farm Bureau will be increasing more and more.

The other day in Columbus, Ohio, the train dispatcher, with more or less intelligence was calling off the stations for a train, and he said "Train for Cleveland, Pittsburgh, New York, and all points east." A nervous old lady, who had been asking him regularly every fifteen minutes when her train left, and so on, for the last two or three hours, said, "I don't care which direction that train is pointed in. What I am interested in is, I want to know if it stops at 'Five Corners.'" She didn't care anything about Cleveland, Pittsburgh, Washington, New York, nor even Baltimore. She was interested in knowing whether that train stopped at her own little station or not. And so are you. I am not interested in your farm bureau, so much, in Maryland, nor in New York, New Jersey or anywhere else. What I am primarily interested in and trying to help is my own farm Bureau, in Indiana. If it is helping some other state and not yours, you think it is not doing anything, and, perhaps, you have a perfect right to feel that way about it.

One of the most interesting words in the language, is the word "community." It comes from the Latin word "*communus*" "in common."

There are many interesting things that we have in common. We are all interested in the things that need to be done. I don't think there were many men in that meeting where a little girl was asked about her household and she said, "Mother is the spanker of our family." In other words, she was the child-raiser, which is an important function, and a responsible one. The father of the family, whenever any pun-

ishing needed to be done, evidently left all those things to the mother. (Laughter).

One of the things that you are interested in is the matter of legislation and taxation. You are interested in all of these things because they affect you, and although you have heard them thoroughly discussed, but I want you to have in mind one fact and that is that in a local unit the fundamental need of the great farm bureau organization we belong to is—members and funds.

Get into the organization and help Mr. Thompson because, today, when he comes before that committee to testify, almost the first question they will ask him will be "Who do you represent?" Well, of course, he is representing the people who have paid their dues in your county and in mine, but I wish that he could say he represented more people than he does represent at present.

I would like to impress upon the minds of each of you younger people, who have perhaps a sweetheart, a wife, or even a grown up daughter, the fact that you need the women to help you. Grandmothers of you and of me helped, when they crossed the continent in those prairie schooners. She sat at the tail of the wagon and watched for any Indians and if they came too close she picked them off, and she was a good marksman.

She has a perfect right to say what shall be done for she had an important part in the developing of her industry—hers as much as her husband's or brother's industry—agriculture!

There are so many things that I would like to bring to your mind about the old days, but there are one or two things which I have time to go into, which I do want to call your attention to. One of these is the matter about the children and the farm bureau.

I find there one reason why the women are especially interested in the Farm Bureau movement. I am glad to see that the farm in matters of labor is approaching what is called the "American Standard of Living."

It isn't just because I happened to marry a farmer that I am interested in this proposition. She is interested in bettering conditions for her husband, for herself, for her family

and her children. In many places we haven't been asked to do the things that perhaps we could do.

You remember the story of an old deacon who had, for the fourth time, taken a bride, and when they were married he started showing her his possessions, and finally wound up at his family lot. He was showing her the graves and she had been told that he had been married three times but she noticed four monuments. She was a bit puzzled, but took her glasses and looked at the fourth one to see what was inscribed on that one.

She found the quotation "Be ye also ready!" (Laughter).

So, the women are ready this afternoon to do anything you may want them to do.

Don't think that they are just people to serve refreshments at your meetings, and all that sort of thing, or to make little fancy items. It isn't just, when you consider the great efforts that we have made.

It is true that we do a great many of those things, but remember that there are a great many other things that we can do and that you want done. Just treat that woman of yours like you would another man, just exactly like you would treat a man in your family. Don't think of her as just a housekeeper but allow her the privilege of having a brain and a soul, and the right to use them. If you do that I believe that she isn't going to fail you in this momentous task.

I told you when I was here two years ago something about my early life as a farmer's wife. Twenty-nine years ago, when Mr. Sewell and I were married, we went into Chicago, on our little wedding trip and while we were there we went into one of the best furniture stores there, retail, of course. We bought there that day everything that young people of that day were supposed to have any need of, and more than that of any other young couple being married in our part of the country. For instance we had the first sideboard in our town. Altogether I remember we paid $150 for that furniture. We had all that anybody was having at that particular time.

We paid $16 a month every month for a farm boy to help out around the place and we were not getting very much for our produce. I remember that we had an awful struggle

that first year and then when we began to pay $20 a month for a good hired man we didn't know how we were going to come out. Think of the changes that have come about in that respect!

But even at that, without knowing it, we were prosperous. We were able to exchange the corn that was in the crops for just exactly what everybody else's dollar was worth, but we put aside just a little bit and we were finally able to have a little home together. But of late years we have had to do some other things in order to keep it.

I am not so worried as you might think, but I am thinking of that young man, my son, chained to a desk in Chicago, when he would rather be on the farm, but because he is able to sell his labor to a great city newspaper at a price that enables him to buy pretty clothes for his young wife, and a very nice place in which to live, he cannot consider the farm life, the pay for which is utterly inadequate for him to give her a home on city standards.

When we say an adequate standard of living, we mean the same standards and the same return for investment and labor that is vouchsafed to other groups of people for a corresponding industry and a corresponding amount of honest labor and responsibility put into any other business.

I told you at that time that I am proud of our industry, the same way as President Thompson has told you in the message he has brought to you. But I also know, of a certainty, that we are in a class who are getting 1½% less, at least, than our share of the national income. That is why I am seeming to you, perhaps, to look so downcast, on this otherwise happy and joyous occasion. Some people say to me, "Have you lost your best friend?" I tell them, "No. But I have about lost my enthusiasm."

I wonder just how we are going to meet this problem. It is going to take the best effort of the men and women meeting in these little communities, meeting with an instructive programme and an inspirational programme and then you wind up with entertainment. You start off with an appetizer, then comes the *piece de resistance,* and then finally you wind up with a good dessert. I am urging that you people put this

problem before the schools so that the boys and girls will be studying your own proposition.

That should be taught in the schools, these problems of coöperative marketing. We have been trying to get the vocational education directors to put them on as an experiment in our part of the state. Then again, the formation of public opinion begins in the home. You have, most of you, families to take the place of yourself and the woman who has gone through life with you, when you are gone. Those girls and those boys, back home, around your particular fireside, they are going to be yourselves of a little later time. You are going to have the opportunity to create the things there that will make for your success and for your country's success in the "day after tomorrow."

I don't have any apology to make. I don't want anybody to "help" us with sob stuff. I don't want to stand up here and say that you have an inferiority complex. Now I just don't want to be misunderstood in regard to this matter; I do want to say that it has taken a wonderful hold on the women of the farm, and we want to keep the farm and not turn it into something else. I know that a farm woman doesn't want to make a hat out of a discarded petticoat. I don't, at least. I don't want to cut up our beautiful green lawn to make room for a filling station and have my husband tend a "hot dog" stand.

But I do want to see the farmer get an adequate return the same as is accorded to anybody in any other industry.

Not so long ago in the American Farm Bureau Offices I was in there attending a meeting and at that particular time there was a fire broke out in the building just across the street. The Farm Bureau Offices were in no danger but it was just close enough so that some of that smoke smouldered into the room. Fortunately it was just the building itself. There were no occupants of the building although it was during office hours but its strategic position made the danger to the surrounding office buildings a very great one and so we just gathered around that window and for a half hour or so we watched them fight that fire, and it seemed as though they were very slow getting any headway fighting those flames. Now, what appealed to me was the fact that these firemen had their lead-

ers. Nobody did anything until the leader had given the word and then they all seemed to get into action at once.

Then, another thing, they all seemed to acknowledge and to agree that the building was in danger and that the fire was likely to gain headway on them so without stopping to waste any time on words and arguments and investigations as to why the fire was there or anything, they all agreed that there was a fire and they were there to put it out, and then another thing, they all directed streams of water at the same place and in a very short time the fire was under control. (Applause).

This afternoon you are in the position, you people, of those highly trained firemen. You are protecting the country, from the richest man right down to the poorest paid employee under contract labour. Everybody admits that there is a "fire" and you have selected your leader and elected him,—the national master of the Grange—L. J. Tabler and he has been making some splendid statements for your guidance and encouragement.

Not only that, but you have your leaders here in the state but you know that your Mr. Cohill is our Mr. Cohill as well. We have learned to know that with our farm bureau work we must not be too conservative. That has been our fault in the past—we were too conservative and we must have just a little bit of radicalism about us, if that is what you call being forward looking and willing to try new things. You must not be provincial, either. You should have your sphere of influence extending on and on and on beyond the Allegany mountains. Mr. Thompson is constantly meeting farmers from the Middle Western sections, from the Western sections, from the warm Southern states and from the North and discussing their problems with them, and another thing it is bringing the people themselves together. People from the sunny south are meeting with people from the north and joining hands and submitting their problems to the national body in the same spirit of co-operation that the bee has been shown to have.

I am sure that we are going to get somewhere with this work, now, and it works out in just this way,, that it will pay those who are working on it the same as it paid those who paid

the cost of building the great St. Lawrence Waterway. We want to see our farm bureau built up, and it will pay us, also.

I am not so worried about what this great migration of boys to the cities is going to do if we can get our work coordinated. Of course it is going to wreck some of these farms. Some people say, "Let them get off of the farm. They will make more outside." That may be true from an economical standpoint, but when I see the way that they are crowded together in cities, in little apartments, etc., I can see that they are only increasing your responsibility and making your work harder and doing nothing to solve the great problem.

The boys and girls have an inborn need to be out in God's open air and getting good sunlight and doing healthy work. That is the great need if you are going to lead a full and healthy life.

I think you will see and agree with me that there is a great moral obligation resting upon everyone of us to keep these boys and girls on the farm.

I wear the little button of the Farm Bureau most proudly. I have a little card in my purse which is the only identification I carry and which shows my membership in the local Farm Bureau group in my particular state. I would rather this afternoon, should anything happen to me, be identified with the Farm Bureau group than have my boy's children say in the day after tomorrow: "Grandma was afraid, and she didn't take her share in the work along with the other people." I am bringing to you today the greetings and best wishes of people all over the country and the bureaus from 20 different states sent women to their Farm Bureau conventions. There were, for example, 12 women from the State of Iowa and they were just as much interested in saving the agriculture of their state from depression as anybody in the Middle West. They figured it out between them how to come to the convention. They figured on coming all together and staying together and in that way they would be very economical and be enabled to take the word back to their particular districts, and they took a day coach, although the journey required traveling at night, in order to save Pullman fare and it is that kind of coöperation that is going to put our Farm Bureau through.

I heard one of those twelve relate how, through no fault of her own, but due to the sale of her home, she was compelled to go out from the old homestead which she loved so well.

That is why there is such coöperation and joining of hands in the Farm Bureau. That is our part, to coöperate and work together so that those things shall not be. That is the task for you farm bureau men and women to go back to your friends in Maryland here and all over the country and tell them what you have to offer them.

It is up to you and I am sure that you will be willing to do that when you reflect that only a few more in every county will mean more power to our organization. I used to know a little boy who was always building roads, in the earlier days of his life. That wasn't his occupation afterward, but he is a great man, now. I remember, though, one time he was working at this man's job of road building and it was very much easier for him to take the earth from a far corner of the orchard near a large tree, and draw it in his little express cart to the hole he wanted to fill, than it was to dig up the earth at that place. So he went out there with his little express cart and filled it up, patting the earth down and then he found it was too heavy for him. It had been raining and his cart got mired in that soft earth and he couldn't budge it. He was a little lad of four years, but he pulled and tugged and struggled and sweated over it and then began to cry about it, and the men folks who were watching him said, "Son, you've got too much of a load on there. You'll have to unload some of it." But he wanted every bit of the dirt. His mother saw him, though, and she went out and with their combined strength, he on one side and she on the other, they pulled it across. That was coöperation.

The American Farm Bureau and its branch, the Maryland Farm Bureau, is like that little boy. Big business stands by and laughs at it and says "You'd better unload your cart. You've attempted too much." If you try to it by yourself, that is quite true, but if you have the women of Maryland and of the United States on the other side, backing you up, you will pull out all right. (Applause).

THE CHAIRMAN: Now, Mr. Stewart has an announcement that he wants to make at this time, before he leaves. Then we have the reports of the Coöperatives.

MR. STEWART: I just want to make one announcement. The banquet tonight is at 6:30. I would like to ask that all the directors meet upstairs in the Rennert Hotel, in the Baltimore County Room.

We have made arrangements to seat our directors along with our speakers at the long table in the banquet room. Special tables have been reserved for each of the counties. In that way you can all keep your delegations together. That is the way they do at the national meetings. Iowa gets up there and sings about their state "Where the tall corn grows" and Illinois has its delegation together, etc. Then if any delegation wants to put on any little event they can do it tonight.

Mr. Davis asks that the directors of the Agricultural Corporation of Maryland meet him on the 11th floor of the Union Trust Building tomorrow morning at 10 o'clock.

THE CHAIRMAN: Now, we have the reports of our coöperatives, The Milk Men, The Tobacco Men, The Wool men and The Poultry Men. Some of these groups will hold their meetings tomorrow morning. Others will report progress, this afternoon.

Then, tomorrow afternoon, that is our busy time. We have been here having a good time up until this time, listening to the talks that have been made, but tomorrow we have got to get down to business. Tomorrow afternoon we have our elections of officers and things of that kind, which are very important, and so I hope that everybody will stay until after tomorrow afternoon.

The best is yet to come, with all due respect to our speakers this afternoon. That is the reports of our coöperative groups. The first will be the report of the Dairymen's Group by Mr. I. W. Heaps.

ADDRESS

BY I. W. HEAPS,

Secretary Maryland State Dairymen's Association.

Mr. Chairman, Ladies and Gentlemen:

I feel very much embarrassed in trying to say anything this afternoon after listening to these beautiful addresses. We have the same thing in our association, twice in one day, the same subject at least, and practically the same speech. I

think that a great many of you people who are here this afternoon heard me say the same thing this morning that I am going to say this afternoon. Because what I said this morning is the same as what I am going to tell you this evening. I was very much interested in Mr. Root's illustration of that bee story, because it seems to me that if we organize and coöperate, and develop, a system of coöperative marketing that is worthy of the name, the first thing we know we will be able by just waving the wand to have the people come flying to us just like that little girl was able to do with the bees. I do know that I wouldn't have the pleasure of making the report that I expect to make if it were not for coöperative marketing.

I don't know that anything that has been accomplished in the marketing of the products of the dairy business that couldn't be accomplished on the farm if the same principles were followed. The same as has been accomplished in the milk business can be accomplished by you.

Our friend in the tobacco marketing field has done a great piece of work in marketing all the tobacco they have and if you can market tobacco and milk you should market other things on the farm. We have been told this evening and were reminded yesterday afternoon that we must coöperate and progress. It is a wonder to me that somebody, before this, hasn't had the sense and life enough about them to go forward further than we have instead of standing still and being satisfied with the things that have been done.

Now, trying as I shall, to say just a little bit in ten minutes may be just a little bit hard, and besides that, in order to save a little time I have here the percentage of production and sale of milk in the last three years. We could have given this account back for the past eight years but I didn't want to bother you.

PRODUCTION

Year	Amt in Gallons	Daily Average
1924	19,716,442	53,870
1925	20,555,090	56,315
1926	22,145,457	60,672
	SALES	
1924	15,678,942	42,839
1925	17,581,396	48,168
1926	18,694,245	51,217

MANUFACTURED

Year	Amt in Gallons	Daily Average
1924	4,435,500	12,152
1925	2,973,694	8,147
1926	3,451,212	9,721

TOTAL VALUE

1924	$5,749,314.49	$15,708.53
1925	6,213,803.71	$17,024.11
1926	6,650,280.84	$18,219.94

You will note that there has been an increase in production, in consumption and return to the farmer each year in just about an even proportion. This has been brought about very largely through the increased quality of our milk and the activities, probably, of the Dairy Council. We have had for that time a quality of milk that was equal, if not excelling, any other milk that we know of. No doubt a great part of this increase was due to their activities. I don't believe that the increased price, or return to the farmer, would have been just what it was, had it not been for a plan of control, similar to that which President Thompson mentioned this evening.

He said something about the matter of surplus. We all know that there is the bad proposition. We know that it is the surplus of every commodity that really wrecks the market. There would be no trouble for any of us in regard to any commodity if we had a ready market for everything we produce. Milk is something that has to be marketed every day, thereby giving us some concern as to some method that will keep that milk moving without breaking the prices.

You producers who are present know that we certainly have some control on production, since 1924. That is, we say that the producer can produce all he wants to, but he can only be paid for an average number of gallons, based upon what he produced in the falls of 1921, 1922 and 1923, plus his proportionate share of the increased sales since that time. That means that you can produce all that you want to, but you can't "bust the market." You want to produce more in the Spring than in the Fall and you do so.

We find that probably 50% of our producers fall below the amount of milk they were allowed to produce, so we had to adopt a policy this past fall which would make it worth while

for a man to continue to produce his basic amount or he would lose the advantage for the amount or average produced during the years 1921, 1922 and 1923.

You know what that policy was. That was that each shipper who failed to average at least 80% of his old basic quantity would lose his share of the increase, and those who produced more than their basic quantity got the increased amount. In other words those who had an excess would benefit by the amount that was lost by the other shipper's failure to keep up his production. Not all the producers maintained their old average. In fact we saw quite a little while ago that there are going to be some disappointments by the shippers who have lost their old average and the ones who have exceeded will benefit by the fellow losing his average. One fellow will be disappointed on this side, and another fellow will be happy on the other side, and the net result will be the increasing of our price. We have however for the present a prospect of continuing on at these prices without having this burdensome excess production.

Just one thing that I want to bring out is this. Very early in our organization we realized that we must have money to continue. We haven't gone out and made this thing public. But there are now certain statements being made, some correct and some incorrect. But as I say very early in our organization we realized the necessity of financing and so in 1921 we started "laying by" a reasonable reserve, which the law allows us to do. The directors set that reserve at $500,000 and that reserve has been laid up over and above our expenses and will be returned to the individual shippers in checks at the end of our fiscal year, which is the 31st day of July, but these checks will probably not get to you before December so that you will have some money for Christmas. You are going to get a check for the amount of money that we put in our reserve out of your brokerage. We will of course pay off the oldest contributors first. This year we will pay those who paid in 1921, the next year, 1922, the next year 1923. Each year brings it up one more year which will make for us a five year revolving fund, holding our reserve intact. Now we believe that it is sound finance and we believe it is necessary to have a reserve in order to do for you

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what we have agreed to do in order that you may market your milk 365 days a year and guarantee you against loss.

THE CHAIRMAN: Any coöperative that has done as well as the Milk producers' coöperative is entitled to 10 minutes. Now we will have a report from Mr. Geo. I. Gardiner, the Secretary of our Tobacco Growers' Coöperative.

ADDRESS

BY GEORGE I. GARDINER,

Manager Maryland Tobacco Growers' Association.

Mr. Chairman, Ladies and Gentlemen:

Like Mr. Heaps I spent about two hours this morning with our Board of Directors making a report to them relative to the tobacco situation and listening to their reports on conditions in their territory. I can easily glance out over this audience, after hearing their reports this morning and pick out, by their prosperous appearance and air of general prosperity, those that were born and raised down in the southern section of Maryland but as I have to report, as I am supposed to make some report relative to the tobacco situation, I can say this, that we feel very much encouraged relative to the tobacco situation. While some unfavorable reports have been made the reports that have been made in general up to the close of this year we feel that we have made considerable advance.

The men, women, children and flappers throughout the United States are smoking cigarettes and of course all of that helps the tobacco business! (Laughter) This last year 1,357,965,000 cigarettes were used, which is an enormous total. That is due to the help that the flappers are giving them, and everybody else, in the United States. I was very much interested in what Mr. Heaps had to say about his surplus and I am also going to report that the tobacco growers' association is also getting along pretty well but I don't think we are going ahead as fast as we ought to. I don't think we are going to be able to return very much of that surplus back to the farmers, just at present. Every time that we think that the sky is clearing and the way is clear, ahead of us, it does rain, and I will tell you that I think Mr. Heaps is very wise

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in building up the surplus that he has and I think he will be very wise to keep back a part of it. I think that our problems are going to be greater and there is nothing I think that puts us in a better position to meet them than to have a surplus.

Now, I only have 10 minutes and I was a little bit stirred up about a situation that I saw the other day that I want to say something about. We have all heard the report that was issued here the other day to the effect that the per acre production here in Maryland, is 6½ to 7½ per cent. more than in the other three tobacco producing states. Of course we get a little satisfaction in making the other fellow see how we are ahead of him and making him scratch gravel to catch up with us (Laughter) but I want to refer, however, to something that I think you are all interested in.

I think you all got this crop report, issued by our very capable and efficient statistician in which he tries to put up to you the necessity of coöperation and to give to you the exact situation in regard to the crops. He says different things in that to encourage you and keep you working with more cheerfulness.

He says it isn't to be sneezed at—our production record. He says that $69,000,000 gross production in the state of Maryland is a wonderful thing. Now, I think that in making that statement he is only following the traditions of the men and the times that have put up to the farmer this kind of encouragement. That is the position by which the farmer has been led to believe that he is something wonderful, and has been induced to keep on "scratching gravel." But when you take in the state of Maryland 9,075,000 acres of land, with a population of 1,449,661, with the assessed value of those lands at $10,392,792. I believe that that is a very poor showing. I think that that is only handed out to you about the same way that my friend Mr. Heaps told me about in a little story last night, that seems to me to fit very well into the farmer's life. While this little story might not be told with a great amount of dignity, it so well fits the situation on this report that is made that I want to tell it to you.

We were talking over the problems of organization, and one thing and another, and he said that one time a couple of old

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fellows were talking and one of them said, "the big things and the little things all have their purpose and fit into the scheme of things," and the other old fellow said, "What in the world is the use of fleas on a dog?" and he told him that he thought that that was a very important thing in the life of a dog, because it made him remember that he wasn't anything but a damned dog! (Laughter).

And I think that these things are given to us by our Government to hold up to us some ideal that will keep us scratching and make us forget that we are nothing but a damned farmer! (Laughter).

I am going to say that if you are satisfied with $69,000,000 as a gross return on your crops in the state of Maryland, when you compare that with the net dividends paid by industry in the United States,—well, we are pretty easily satisfied, it seems to me—and if you will just take the automobile and moving picture industries which you might say are just in their infancy—only about 15 years old, and yet last year the automobile business mounted to $239,769,565. The increase in business of the General Motors Co., alone was more than our gross production in the State of Maryland. If we are satisfied with any such conditions as that I think we are easier satisfied than I believed us to be. It is foolish for you to be satisfied with conditions as they are at present. I will guarantee—I would even bet on it that if you raised the standards of living of the American farmer to that which is enjoyed by the professional man, the banker and the man employed in industry, the men who have not left the farm will remain there and they would not be satisfied with this $69 per capita. Ladies and gentlemen, the only reason I bring this to your attention is the fact that these things can only be worked out by coöperation and honesty and equity, as other industries have done.

THE PRESIDENT: Now we have the report of the Poultry Coöperative; Mr. Stewart had to leave, so that will wind us up. I am going to call on Mr. Payne.

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ADDRESS

BY FRANK M. PAYNE,
Director Atlantic Coast Poultry Association.

Mr. Chairman, Ladies and Gentlemen:

I am sorry that our good friend Cooley didn't get down here today and yet, I am kind of glad, too, because this beautiful building with its wonderful furnishings, and this nice glow on his red head would have probably dazzled you, somewhat. Because he really has a red head, and if you want to see a real red head, come around to our meeting tomorrow morning.

Just a word about conditions upon the Atlantic Coast—we are still a little bit better off on the selling proposition than we were last year. We are a little bit more prosperous and have a little bit better credit and are advancing slowly toward what we are trying to accomplish, toward the lines of economy and better control in the egg market, and also in our methods of handling. In that way we stand a pretty good chance in the New York market. We are greatly interested in seeing you folks make real progress whether you produce eggs or not, because as we see it there is just one factor which will make our endeavors successful, and that is your farm bureau support.

We figure that in our strategic position the New York market offers us a good field, because if we can get control of 50%, 60% or 70% of the egg market in that city and can regulate the production in one state, and ship in good quality eggs, we have got that market. The Missouri people can ship any amount of eggs into New York and after coming all that distance, can find a buyer for them, because we haven't produced heretofore on such conditions. We are really right at the doorstep of New York and there is no reason why we can't get that market. The thing that is helping us to secure that is the education which you people are receiving in supporting and helping toward the furtherance of your farm bureau organization. If that comes about we can then compete, successfully, with the Missouri people and the Pacific people, and unless we can get to that point we will lose the benefit of that advantage.

THE PRESIDENT: The five minutes is up. We will see you all tonight, at the banquet, I hope.

THIRD SESSION

Friday, January 7, 1927

(The concluding session of the eleventh annual meeting of the Maryland Agricultural Society-Maryland Farm Bureau Federation was convened at about 1:30 o'clock on Friday afternoon, January 7, 1927, in the main dining room of the Rennert Hotel, Baltimore, Maryland, with the President, Mr. James W. Davis, presiding. After several songs led by Dr. F. B. Bomberger, of the University of Maryland, in which the convention joined, the meeting proceeded.)

THE PRESIDENT, MR. DAVIS: The first thing on our program, after the music, is an address by Dr. Bomberger on "Co-operative Marketing in Denmark." I know that he is fully competent to tell us about these matters, because he has been over there, and he has made quite a study of the subject; and we are always glad to listen to anything that Dr. Bomberger has to tell us.

ADDRESS—"COOPERATION IN DENMARK"

BY DR. F. B. BOMBERGER,
Chief, State Department of Markets

Mr. President, Ladies and Gentlemen:

I like to be introduced in that way, whether it's true or not. For somebody to say "We are always glad to hear anything you have to say" gives you a pretty broad chart, and you can start out without any compass or anything except air motive power! All one has to do is just to go ahead.

If I were going to sum up the general consensus of opinion as it has been brought out by the speakers at this convention, (to sound the keynote, as it were) it seems to me that it would be expressed in the word co-operation. From the very outset of the convention, as I recall it every speaker has stressed the need for co-operation among farm people. I don't think anyone need be surprised at that, because, after all, our whole life, our whole civilization, our very mode of living and acting, are based on co-operation. We would not have this meeting if we did not have co-operation, because some of us are here expecting to perform one function, and others are here expect-

ing to perform another, each working with the other with the hope that some good may come from it.

I am particularly pleased to have the privilege of talking on this subject of co-operation in Denmark, because I have an idea that nothwithstanding the fact that Denmark is over in Europe, and we are in the United States, and that there are many things in their life and civilization that are alien to us, there are some points in connection with the way in which they have developed co-operation that are of vital importance to us in America today.

As you know, it was my privilege during the past summer to go to Europe in company with the Maryland Boys' club cattle judging team that had won the national championship here, and were enabled to take part in the international contest in Great Britain. I went along as the administrative representative of the Extension Service. I accompanied the boys to keep them straight, or they went to keep me straight! (Laughter) I think together we kept fairly straight—at times, at least! (Laughter)

We had a splendid experience. After we concluded our contest in Great Britain, we had several weeks when we were free to go around through northern Europe, as far as our funds would permit. We outlined a schedule that carried as far as the money available would carry us, and no further. I think we came back with our accounts just about squared.

We went through England and Scotland, then to France, through the northwestern part; and across into Switzerland, came down the Rhine through Germany; saw that much at least of the great German republic; into Belgium, where we spent several days. And then the boys spent a day in Holland. I left them there, because I had in the meantime outlined a ten day study of co-operation in Denmark. After their day in Holland, the boys came back to Antwerp and embarked for home. I crossed over that whole section of northern Germany alone, and finally arrived in Denmark, where, in company with a party of representatives of the American Country Life Association, we spent ten of the busiest days of my life, I think, in making a very intimate study of agricultural conditions in Denmark. I do not believe that the thing could have been planned to better advantage. The whole pro-

gram had been mapped out in advance. We went to a certain place, studied the school, the creamery, the factory, the wholesale organization, or perhaps the farms of the people. Whatever it was, it was all planned in advance. We went into the homes of the people, talked with them, sat down and took meals with them. And while we were there only a short time, we had a very splendid opportunity to get an insight into the lives of the people.

Now, in the brief time allowed me today I cannot hope to cover the whole subject. I just want to make one or two observations from which perhaps we can draw some deductions.

In England and Scotland, we found out that agriculture is in a deplorable condition. I have said on several occasions that, after hearing the widespread discussion of the distress among farmers here, if we could load a couple of thousand of those on ships and take them to Europe, and let them see the deplorable conditions under which agriculture is being conducted in Europe today, they would be a happy contented people when they got on the boats to come back home. I say that without minimizing in any degree the unsatisfactory conditions of agriculture in this country. We have to go abroad to form even a faint notion of how well off the farmers are in this country.

For instance, in Great Britain, suppose you were a farmer, and producing under conditions where, if you are growing grain, for instance you have a market absolutely wide open to wholesale shipments of grain from America, the Argentine, Australia, India, Russia, and wherever grain is produced. The result is that the English farmer is absolutely out of the market when it comes to growing grains. If it is a question of wool, we have the same situation. If it is a question of beef, the Argentine frozen beef is placed in Great Britain at a figure that the British feeder cannot compete with. As to pork, the Danes have absolute control of the market. In dairy products, the same situation obtains. As to eggs, the same conditions exist. If it's fruit, here we have an American horticulture flooding the English market with fruits. The British producer makes no money; he has no market. The result is that, with the exception of a few small fruits and vegetable

crops, we find the English farmer absolutely up against a proposition that we cannot even begin to visualize unless we are on the ground.

Near Edinburgh I saw eleven men hoeing with hand-hoes root crops,—rutabagoes, turnips or beets. They do not grow corn at all. They have root crops for their animals through the winter. Eleven men hoeing a crop to serve as feed for dairy cattle in the winter time, when the dairyman of Great Britain was competing in a market for the sale of his products against the most efficient production possible in Denmark. What is the result? Either those eleven men are getting a pittance for the labor, or the farmer is facing bankruptcy. I think both conditions are partly true.

When we went to France—and the same conditions applied in Germany—we found that there they have that ancient system of strip farming. Under the land laws of descent, all real estate is divided among the children upon the death of the father; and in each case they have that subdivision of small parcels of property among the children. There, as you ride along on the trains, you find just strips of land, one hundred feet wide,—three hundred at the most, a strip of grain, a strip of root crops, clover, or whatever it might happen to be. And there were the men and women and children working by hand, or at most with primitive tools, particularly in the handling of the grain, the harvesting, etc. You may be astonished to learn that in the twentieth century this could be true; but I actually saw hundreds of cases in which men and women were cutting wheat and rye with sickles, just as in the days of Ruth and Naomi in the pre-Christian era. It seems almost impossible. Now that accounts for the terrific situation of the German agriculturist. I say "German;" I mean the European agriculture, because that was equally true of much of France and Germany and in Belgium. And I am informed pretty generally that is true, except in isolated cases where they do have large farming, in France and in certain sections of Germany.

Now, that means many things. It means uneconomic production, because in this age you cannot produce grain crops or anything by mere hand labor, in competition with mass production with the use of power and machinery. It means

worse than that. It means that the women and the children are compelled to do a terrific lot of the drudgery.

In order that you may know just how terrific that is, I want to read to you just a paragraph or two from a statement made by Dr. Branson, of the University of North Carolina, in which he outlines that particular section. He says:

"I have never seen women work harder or work at harder tasks or during longer hours than the peasant women of Germany. They do the work of women in the house and they do a man's work in the farm patches. They are pack horses and draft animals out to the fields or into the market town and back home again. With all the rest of the household they swing the flails that beat out the seeds of the harvest on the barn floors. The rat-tat-tat, rat-tat-tat of these family flails can be heard all day long and far into the night in every farm house. Every farm village in Germany is noisy at this very hour with exactly the same noises that filled the household of Abraham in the harvest season, in the land of Ur, in the twilight times of Bible history.

"They work on their knees in the fields within twenty yards of the railroad track in the earliest morning light without once looking up as the Miteuropa Express goes thundering by. They even work, these German peasant women, in track gangs, building and repairing the railway beds, and station yards, and they work at these back-breaking jobs without pause in the down-pouring rain. I saw them doing it in Bavaria more than once along the way from Ulm to Munich.

"When one sees an old soul staggering down a row of beets or turnips with a heavy liquid-manure tank strapped to her back and stooping low at every step of the way to pour a cupful with a twist of her shouldres into every hill, one wonders if anything like it can be seen anywhere in Christendom. And where else outside of China or Japan can one see a gray-haired woman of seventy or so dragging a manure wagon along the highway and stopping every little while to sweep into a shovel the animal waste dropped by the passing oxen, cows and horses? It is the peasant women's work in Germany and commonly it is the work of old women aided sometimes by the old husband or the grandchildren. It is a moving spectacle that I have seen too often to count.

"In Germany the peasant woman's work is masculine, feminine, neuter, and common, all in one. She is child-bearer, housekeeper, farm hand, work animal, drudge, scavenger, whatnot, all without any apparent evidence of being aware of her hard lot in life."

When I got to Denmark, the situation was absolutely different. Although we were there only ten days, it was the busy season of the year, and yet it was the rarest thing in the world to see a woman in the field. We saw a few of them among the small farms,—and when we speak of "small farms" over there, we mean a farm of five to eight or ten acres. Naturally it's a family affair, and we did see women out there helping to bind up the sheaves and to load them on the wagon. But as a rule the women were not working in the fields in Denmark.

I want to draw the contrast here. I cannot imagine that it's just a mere accident when we come into Great Britain, and into France, Germany, Switzerland, Belgium, Holland, that we find this outlook for agriculture which is anything but reassuring, which is depressing; and find the whole thing done on an individual basis; and then come just a few hundred miles further into a nation like Denmark, and find the absence of all those conditions. Now the difference is this: In those countries, to a large extent, they are engaged in small section hand farming, mostly engaged in the growing of farm crops. In Denmark, they have live stock farming predominantly done on a machine basis; and that has come about purely through co-operation.

That point I want to bring to your mind. Seventy-five years ago Denmark was absolutely flat on her back agriculturally. After the war with Germany, when the fairest provinces of Jutland were taken away from her, Schleswig and Holstein, she was confronted with a great debt. Worse than that, they were grain farmers then. After our civil war, the grain grown from the virgin soil of the west was landed in Denmark at a figure that made it absolutely impossible for them to compete; just as the British farmer today is confronted with the competion of the outside world. Now that was the situation. They were grain farmers. They had been for hundreds of years. They were now confronted with the situation where they could not produce to meet the market. What could they do? Well, they could probably complain about it and whine about it. They might have engaged in recrimination, blaming somebody for it. The Danes didn't do that. They said, "We have a problem here." They didn't solve it in a minute nor in five years, but within twenty years they had taken their problem and analyzed it and found out what they had to do was to convert that grain farming in Denmark into live-stock production. They saw their problem, they analyzed it, they saw the solution. And then what did they do? They united in carrying out a program to solve the problem. The result is today in Denmark we find them exporting,—exporting today seventy per cent. of their production.

The Danes today produce dairy products; they produce bacon; they produce eggs; and that's what they export. Now

when you export butter, when you export bacon, and when you export eggs, you are not taking away very much of the fertility of your soil. Instead of extracting farming, impoverishing their land, they are now sending out a highly developed product which takes a minimum of fertility and returns the vast majority of it to the soil. The result is today that a very poor soil and stricken land has been converted into the most fertile scene to the eye that you will find anywhere.

How did it come about? Through organization. There is no other answer. Through organization. In order that you may get some little idea of just exactly the extent to which this organization has taken place, I am going to call your attention to the scheme of organization, first of all; and then I want to analyze one or two of its principal features. I hope that I will have time to do at least that, and to draw one or two inferences that may be of value to us here.

In Denmark I found that they have one central organization that represents all of the farming industry of Denmark. I want you to keep this in mind, because I think it will help you to get a better understanding of the picture. You realize that Denmark is a very small country. Maryland plus Delaware gives more land area than in Denmark; so that is relatively small. Yet we find there a situation that provides for land holding by about ninety per cent. of the farmers. In other words, ninety per cent. of the farmers are owners of their land, and that other ten per cent, are rapidly approaching the point where they will own their farms.

We have in Denmark the Agricultural Council, one organization. All farmers in Denmark are eligible to affiliation with it by one means or another, and just about ninety-five per cent. of them are affiliated. Now, that Agricultural Council is made up of three units at the present time. One of those is the Royal Agricultural Society, which corresponds with the old Maryland Agricultural Society as originally constituted. That is to say, it is purely an educational promotional organization. It was organized in 1769. It has about 839 members at the present time. But because of its age and past history in the promotion of agriculture, it is allowed two members on the Council of twelve. So two members represent this promotional educational organization, the Royal Agricultural Society.

Then we come to the Central Co-operative Committee, which is a free translation of the Danish name. It is, in effect, a federation of all of the co-operatives of whatsoever type to be found over there. This was originally organized as late as 1898. Reorganization took place in 1917, when the present system of coordination was brought about. This vast group, which includes—and you are going to start now; unless some of you have heard these figures before,—7794 organizations—co-operative associations.

Now just for a minute imagine, will you, that in Maryland and Delaware we had 7794 functioning co-operative organizations! The population of Denmark is just about the size of Maryland, a few hundred thousands more. Instead of sixty-five per cent. of the population in the city, it is reversed; they have about sixty-five per cent. among the farming population, and thirty-five per cent. in the city. You talk about co-operation. Now imagine nearly eight thousand individual co-operative associations all functioning in a little state the size of Maryland. Ten will include all we have—twenty-five if we include the county co-ops,— that are functioning in this State. How many Danes belong to those things? There are 206,000 farmers in Denmark. Now of those 206,000, there are 888,000 of them that belong to the co-operatives. There's a catch in that. I will explain it. That means that on an average the Danish farmer belongs to about four to five organizations.

Have you heard in this country, when we try to organize what seems to be a good plan of organization, someone says, "Oh, I belong to an organization already!" just as if one dose were enough! As we visited these Danish farmers I would say, "Now, how many co-operatives do you belong to?" In most instances they did not know. Would you believe it? "Oh," he would start out, "the Co-operative Creamery, the bacon factory, insurance, and I belong to the purchasing organization," and we would put them down. In one case there were seventeen! "Now are you sure that is all?" "Well, I don't know. There may be two or three others I have not thought about!" Now that is what we call co-operation, friends.

These are the official figures: For 1925, there were 7794 functioning co-operatives in that little area, with 888,000

members, or a membership of 888,000. All that group are satisfied to be represented by five members on this Council,—five out of the twelve.

Then we come to the third group, and that includes the Federation of Danish Agricultural Societies, their local farm bureaus, or the equivalent of them, local community organizations. They are all federated, all brought together as the farm bureau locals are in this State. And of the 206,000, there are 116,000 of these that belong to these associations.

In addition to those, there is another group known as the small farmers. I have mentioned those already. They, on an average, operate farms that will range under twenty-five acres, many of them as low as five, seven, eight, nine, ten acres. Of these there are 81,000. So if we take the 116,000 and add to that 81,000, we have 197,000 out of the 206,000 farmers that belong to farm bureaus or community organizations of the sort. That is about 95 per cent.! Now you see why the Danes can get somewhere; when they organize, they organize all over. They go into it on a practically one hundred per cent. basis, and that is the result.

The members of the farmers' associations have five representatives on the council of twelve, and everything that comes up in connection with Danish agriculture heads right up into that one nerve center organization. If it's legislation, they speak with one voice, not with the divided counsels we have at Washington even at the present time. They do not have one group here and another group claiming to be equally representative advocating something else. As I said before when the Danes co-operate they co-operate all together.

Well, now, what does this mean so far as the actual business of farming is concerned? It means that a Danish farmer is eligible to and may belong to any one of fifty-two different kinds of organization. I have a list of them here. I will not take your time to read all of them, but you will be interested in a few, I think. We talk about co-operation in this country, and we almost invariably think it is a marketing proposition. Co-operation absolutely permeates Danish agricultural life. They co-operate in production; they co-operate in community affairs; they co-operate in buying and in selling, in manufacturing, in almost everything—Let me read you just a few of

the organizations that they have, to give you some little notion, I shall not read them all. They have horse breeding associations. That means that the farmers combine to purchase the animals that they will use for breeding purposes. And it may be cow breeding or poultry raising or cow testing associations. In the little state of Denmark they have over eight hundred cow testing associations! They have twenty-two counties over there. We have twenty-three in the State of Maryland. I think we have ten active cow testing associations. In Denmark, about the same size, they have over eight hundred! Are you surprised that since 1887, in about forty years, they have doubled the production of their dairy cattle? That shows what co-operation and co-ordination of effort in pursuit of a practical program will do.

They have bacon factories. That means that they not only grow the hogs, but they convert them into bacon. They first grew the hogs and then tried to sell them to the Germans. Germany put up the bars, and they had them on their hands. But the Danes worked out a solution for their problem. They said "We will kill and cure the hog and send him to Britain, which is the best market in the world, instead of to Germany." And today the breakfast bacon you eat in Great Britain comes from Denmark,—ninety per cent of it, and it is the highest quality in the world. They have egg export associations,—which grade the eggs and sell them in the highest market in the world. They make their own cement, manufacture it and distribute it. They have lime organizations, sugar beet factories, chicory. They don't consume much coffee, so they manufacture and distribute chicory. And then we come to a group of organizations,—live stock insurance companies. What protection has the farmer in Maryland or the United States against losing his animals? There are two thousand,—and I am very careful about figures. I am like the negro in Kentucky. A man was going to employ him. "Look here, Mose, are you familiar with mules?"

"No, sah, ah knows too much erbout dem ter be f'miliar wif dem!" (Laughter.)

So I know too much about figures to be familiar with them! Two thousand live stock insurance co-operatives in that one little state! They have hail insurance. They don't have their

crops out open to the ravages of the seasons without protection. And where do they get the insurance? From themselves. They have fire insurance and accident insurance and storm insurance and even life insurance co-operatively, owned by the farmers. They have all kinds of credit institutions. They have short loan organizations—they are not content with the kind of credit that we can get from our federal land bank or even from the newly created intermediate credit banks, but they have credit associations adapted to the needs of the smallest farmer in the country, and they are co-operatively owned and co-operatively managed by the farmers in their own interest. They have co-operative water works and electric power societies, saw-mills. At one place where I was questioning one of the farmers it was brought out that they had not only a co-operative hospital for the community, but they employ a doctor at so much a year to keep them well, rather than reverse the proposition as we do, making it profitable to him for us to get sick!

That gives you some idea of the scope of their co-operation. Now how does it work? I wish I had an hour or two to go extensively into the plan of how this thing works, because you want to know whether its is practicable. Let us take one illustration. As I said before, their market for hogs was cut off. They proceeded to organize bacon factories. Incidentally, they give that meat only a mild cure. But they call it curing bacon. When they found out they wanted to send their bacon to a British market, they found that the kind of hogs they were growing did not suit. They were too big and fat, more like the American hog. What did the Dane do? Did he talk about the cussedness of the man who would not buy what he had grown? Not at all. He said,"All right, if they want a thin bacon, we will give them a thin bacon." They got the Yorkshire bore and crossed him on the Danish hogs, and produced a type of bacon that the British are willing to pay top-notch price for. How do they keep him that way? They have a rule there that a hog of about 210 pounds will produce about the kind of carcass to bring the best prices. Therefore, if a farmer brings in a pig twenty pounds over the minimum, he is penalized for those extra twenty pounds; and if it's twenty pounds under, the same way. The result is, it pays

farmers there to market hogs when they are just right,—Don't you see? And so they have slowly standardized the product. In the cooling rooms there I have seen hundreds of carcasses suspended, and to the uninitiated they looked all alike, as if they were twins. That's standardization!

You talk about co-operation for marketing. Why they went away back of that. They standardized the breed. The production, the type, and the whole process has been standardized; so no matter whether it comes from one or another factory, you may rest assured it arrives in the market standard as to quality of cure and everything else.

But they tied the whole thing up. They found out that it was profitable, or they would make it profitable, at any rate, to grow dairy products. Every farm in Denmark, whether only five acres, has two to twenty-five cows. They have one principal breed. I forgot to tell you there is only one breed of hogs in Denmark. Isn't it foolish, all to agree on one type of hog,—if you will, a white hog, a spotted hog, or a red hog? How foolish for the Danish farmers to do that!

And the same way with cows. They have really two breeds. The highest part of Denmark has the red dairy cow, and over in the part called Jutland they have a cow a good deal like our Holstein-Friesian, although more of a beef animal than our type over here. But they have principally one type. They bring in their milk to the creamery, co-operatively owned. It is separated, and the farmer,—or as frequently happens the driver on a truck route who collects and distributes—when he goes back takes the skim milk right back to the farm. The dairy production of milk is stabilized. The result is that hog feeding is stabalized. I asked the manager of the bacon factory, "How do you keep the supply regulated?" Well, we never had to go to any trouble about it. It takes care of itself, because it is related to the skim milk production." When the price of bacon gets low, however, in the British market, they pass the word down among their co-operatives. "Cut down the breeding a little bit." So one who would usually breed five sows will breed four, and so on. Talk about price control; they have it! But how do they get it? Through co-operation, through recognizing a problem which they can solve, and then solving it themselves.

You will be astonished, I think, to known just how many of those co-operative creameries they have. I will stick to my figures now, to make sure I get this right. They have 1371 co-operative dairy organizations ,with 180,000 members out of 206,000. I venture to say that practically every man in Denmark who owns a cow belongs to a co-operative dairy association. Probably there are a few thousand who have such small places they don't have cows. One hundred and eighty thousand! And while on the subject, there are 170,000 of the 206,000 Danish farmers that belong to the co-operative bacon factories. And now you would suppose of that great number, 1371 co-operative associations, they would produce 1371 varieties of butter. But they don't. Why? because they have the whole thing absolutely standarized. They have a brand there, which means that butter, to be exported from that country, absolutely must come up to that standard. The result is they do not produce butter of any other kind. They produce it to sell. It must be up to a certain standard. Therefore they produce it up to that standard.

Now friends, I think I have already gone as far as I should, in view of the fact that you have a lot of business to take care of this afternoon. But I just want to sum up here for a minute. These Danes co-operate in production; they co-operate in the manufacture of their products whenever it is necessary to manufacture them in order to get them on the market in the best form so that they will get the most money. They are not satisfied to produce raw materials and trust to the Lord they can sell them. That isn't their system at all. They produce something they know they have a market for. They adapt it to the market, and if necessary to manufacture or process it, they do that. In other words, they mold their own destinies, and do not leave it to chance or Providence. They co-operate in the marketing of products and in the purchase of supplies. They have a wholesale society in Copenhagen which represents hundreds of thousands of the farmers. It's a vast building, a warehouse, covering an entire block, and the biggest department store in this city has no greater diversity of things than they have in there. And this is just a wholesale society to provide the things for the small local distributing organizations to sell to the farmers,—farm machinery,

pianos, clothing, bath-tubs,—everything they buy for distribution among themselves.

I have already mentioned the manufacture of supplies,—lime, sugar, chicory, etc. Providing insurance—I have referred to that. In promoting education, the farmers' associations themselves employ county agents, partly financed by the government. They don't call them "county agents," but they perform the functions of our county agents over here. They may be experienced in the care of the horse, or specialists in dairying, or specialists in pig raising, or specialists in other things. The Danes co-operate to help themselves help each other, while getting the co-operation of the government in carrying that out and in developing the community interests. I cannot go into that. I will just have to pass it over.

There is no place on earth, I believe, where rural people have provided better for their community interests than in Denmark. I could quote you from an article I have here from Mr. Chris. Christensen, at the head of the Division of Co-operation, United States Bureau of Agricultural Economics, that nowhere on earth is there a more satisfying rural life than there is over there. How did they get it? How did they come from poverty three-quarters of a century ago to a point where the rural people have a satisfying rural life? You go into their homes, and it's invariable that you will see evidence of an appreciation of the beautiful,—a piece of statuary may be only of plaster of paris, perhaps it's a replica, but it's a reproduction of the best that's to be found in the art galleries of Copenhagen. You will find pianos; you will find everywhere they are very fond of music over there; you will find everywhere evidence of musical appreciation and education, paintings, and that sort of thing. The surroundings of their homes are almost universally attractive. Nowhere did I see a home—even among the newest ones—where they did not start their flower gardens with the hedge rows, and the little nook where in the evening they have their tea after the day's work is done. That's the fruitage of co-operation.

Now what does it mean to us? I have summed up one or two little things. Through co-operation they have standardized their production. They have lowered their cost of production. They have practically doubled the production of cat-

tle through cow testing and improved breeding of herds and lowered the cost of production so that they are prepared to go into the world market and meet the stiffest competition that can come up against them.

I think it was Dr. Pearson who said here last night that efficiency in production gives you this wonderful advantage, that when the market is bad you are better off than the fellow who produces at a high cost. You cannot get away from it, friends, you can co-operate all you want to, but the more you attain of efficiency in your own individual production, the better off you are in the long run. And if you will combine individual efficiency with the co-operative effort, as the Danes have here, you have solved a large part of your problem.

They have wiped out hand labor except on the very smallest farm, where machine labor would not be profitable. They have reduced women's labor to the point where it has practically disappeared. Let us see.

When I was a youngster, back in the country, "wash day" was an awful day in the farm home. "Ironing day" was another. The baking was another big job, not always limited to one day in busy times. The churning of the butter was another. Now you go into the farm woman's life and take out the laundry work, and take out the baking of the bread, and take out the care of the milk and the churning of the butter, and believe me you have wiped out a tremendous lot of drudgery that the people of our generation had to put up with, and too many of our farm women in the country at the present time have to meet. What does the Dane do? Why, the Danish women send their clothing to the co-operative laundry, and have it all attended to. They send their milk—which is mostly milked by the men, incidentally— to the co-operative creamery, and that is taken out of their lives. As a matter of fact, in many places the women have almost nothing to do with that very important source of income to the farm. They get their bread from the co-operative baker, and they have time then for the other things than drudgery. They have maintained a high degree of culture in the farm home.

Now I would be the last person in the world to assume that in this country here we can do everything they have done, in a short time. But we have made wonderful progress here.

About two million of our farmers belong to co-operative associations, and already are marketing perhaps two and one-half billions of dollars, probably twenty per cent. of the farm production of this country. That's splendid progress. In Iowa, the co-operative creameries number about sixty-three thousand members; and I think they market annually about thirty-three millions of dollars' worth of products. In Minnesota, they have nearly six hundred creameries in one federation with about seventy-three thousand farmers, and producing fifty millions of dollars of dairy products annually.

We are making progress particularly in co-operative marketing. But we have to co-operate in production. You can't co-operate in marketing alone. There must be something ahead of that to standardize your production and your methods, to determine the best methods of production, so that you will all bring in a product that is standardized; and then your co-operative associations will have no trouble in selling the stuff if it is right.

In Denmark, co-operation is a principle of life, not merely a method of marketing farm products. We have to beat that into our heads. We have just to keep on pounding it until we get it into our heads, if we are ever to get the full fruition of this movement. Co-operation should be from the ground up. Think of it! Thousands of these little organizations! You would think there would be lost motion. Not at all. Because the farmer has to know the people that he co-operates with if he is going to do it one hundred per cent. He has to deal with his neighbors that he has confidence in. Then you can bring your small units into co-operation, and co-ordinate efforts on a similar program. They believe in federation rather than in integration, as contrasted with our tobacco co-operatives. They believe in building up, just as the Minnesota creameries have done,—starting with the small unit federation. These grow, and there gradually is brought about the satisfying result.

Organizations of many diverse kinds should be federated and financed as to their business. I asked the secretary of the Council, "Who pays for all this Agricultural Council?" Their budget runs into about one hundred thousand kroner or about twenty-five thousand dollars a year! "Why," he said, "It's

just about ninety per cent. of it paid by the co-operative organizations." And that's sound. The fees and the dues that they pay into their farmers' associations are not uniform and are usually small. They depend altogether upon what they have in mind, but they look to the co-operatives to finance the Agricultural Council. And where all the farmers belong to the co-operatives, there is no particular difficulty about that.

Just one other point. Farm people should organize for self help. The Danes organize for self help. Oh, they have a farmer controlled government over there. They control the government absolutely, the farmers do, in Denmark. They can get anything they want from the government. But they don't want much or ask much from the government. What they want is to get together, to organize their own program, and stick together in carrying it out.

I just want to quote from Sir Horace Plunket to show his view—and I guess he's the foremost student of co-operation in the world today: "The longer I live, the more certain do I become that the best that government can do for farmers is of insignificant importance compared with what, by carefully thought out and loyal co-operation, they can do for themselves."

I just want to conclude with two brief little stories. I have told these a dozen times, and you probably have heard them, but I think they round off the discussion. One of our county agents not so long ago was talking to a farmer about an improved method of producing potatoes. This fellow was obdurate, didn't pay much attention, until the county agent said "Now look here, Mr. Brown, you know this is all right. The Department of Agriculture has demonstrated this over a long period of years. The college has verified it as applicable to this State. We put a demonstration on your neighbor's farm. You have seen it. Now why don't you come on in and follow this method?"

"Look here, young fellow, there's no use in your coming down here and telling me a new method of growing potatoes. The truth of the matter is, I aint using half I know now!" (Laughter)

Now, I think that's our trouble. We know a whole lot more about what we ought to do than we are doing.

The other one is the story about the darkey that was courting his gal, and he said, "Oh, honey, you-all is boo-ful red, red rose, an' Ah wish Ah had a thousan' arms t' hug yo' wif!" Whereupon the "boo-ful" but dusky one replied disdainfully, "Go 'way wif yo' Rastus, yo' fool nigger, why-fo' don' yo' use de pair dat you got?" (Laughter and applause.)

THE PRESIDENT, MR. DAVIS: I certainly think we all appreciate what Dr. Bomberger has told us. I only wish he had time to tell us more. I have been fully convinced for quite a while that with a wonderful climate and soil that we have here in Maryland we do not half use what we have. Now if we could only put into use a part of the co-operation and a part of the methods they tell us about! And we have got to do it sooner or later. We don't realize perhaps, but the time is coming, and already may be here, when we are in competition with Denmark and with every other farming community in the world. Transportation has brought that about. A few years ago it didn't make so much difference to us what the fellow did over in Denmark, or what he did in the middle west, or what he did in California; it didn't concern us. But today, the increased transportation facilities have made us neighbors to the whole world. Now we can't sit here and think that we will go along as we used to. And when we have the information we certainly are not doing our duty if we do not use it, and we certainly are going to fall behind in the race that we are engaged in, because that is what it is. If we do not do our part, if we do not produce what we should, if we do not produce what the people want, we are not going to sell it. If we do not produce the kind of tobacco that the people demand, we will not sell it for the best price. If we do not produce the best milk and cream and butter, we will not get a price for that. And it's that way all down the line. Now if we do not make use of these opportunities we are going to fall behind, and we can only blame ourselves if we do. I didn't start out to make a speech, but that's the way it impresses me.

We are now up to the point of receiving the report of our Credentials Committee from Mr. J. W. Jones, our Chairman, and we will now hear from Mr. Jones.

REPORT OF THE COMMITTEE ON CREDENTIALS

By Mr. J. W. Jones, Chairman

Mr. President and Members of the Convention:

Your Credentials Committee begs leave to report as follows:

1. According to the Constitution of our State Organization each county in addition to its director is entitled to two delegates for each 100 members in good standing or multiple thereof. This provision of our Constitution has not been strictly adhered to in the past, the practice having been to seat delegates on the basis of one delegate for each 50 members or major fraction thereof. We recommend that this practice be followed again this year and submit our report accordingly, although we are prepared to bring in a substitute report which is in strict conformity with the Constitution if this Convention so desires.

2. We recommend that delegates be apportioned to the several counties as follows:

County	Members	Director	Delegates	Total Representatives
Anne Arundel	170	1	3	4
Baltimore	306	1	6	7
Calvert	79	1	2	3
Caroline	145	1	3	4
Carroll	59	1	1	2
Charles	28	1	1	2
Dorchester	239	1	5	6
Frederick	437	1	9	10
Harford	323	1	6	7
Howard	244	1	5	6
Kent	120	1	2	3
Montgomery	284	1	6	7
Prince Georges	143	1	3	4
Queen Anne's	212	1	4	5
St. Mary's	33	1	1	2
Talbot	159	1	3	4
Washington	75	1	1	2
Worcester	179	1	4	5
Total		18	65	83

3. Affiliated organizations in addition to their directors are entitled to one delegate for each 500 members, but may not have more than 3 delegates. The custom, however, has

been to seat one delegate for those organizations with less than 500 members and we submit a list which follows this precedent:

4. We recommend affiliated organizations be permitted to seat delegates as follows:

	Director	Delegates	Total
Md. State Horticultural Asso.	1	1	2
Md. Crop Improvement Soc.	1	1	2
Md. State Dairymen's Asso.	1	3	4
Md. State Bee Keepers' Asso.	1	1	2
Md. State Vegetable Gr. Asso.	1	1	2
Md. State Sheep Gr. Asso.	1	1	2
The Agricultural Corp. of Md.	1	3	4
Md. Tobacco Growers' Asso.	1	3	4
Atlantic Coast Poul. Prod. Asso.	1	1	2
Md. Swine Breeders Asso.	1	1	2
Total	10	16	26

5. We find that if the above report is approved the total representation in this convention of the County Farm Bureaus, affiliated organizations and the State President and Vice-President is 111.

6. The Credential Committee recommends that on all roll calls the vote be polled by counties, the chairman of each county delegation announcing the vote of that county.

7. The Committee recommends that our constitution be amended to provide for apportionment of delegates similar to the plan which has been followed and found more suitable than that authorized by the constitution at present.

Respectfully submitted,

CREDENTIALS COMMITTEE,
J. W. JONES, *Chairman.*
W. ROYAL MERRICK
CHARLES T. COCKEY, JR.

MR. JONES (at the conclusion of his report): I move the adoption of that report, Mr. Chairman.

(The motion was seconded by Mr. Burdette, of Charles County, put, and unanimously carried.)

THE PRESIDENT: The report of the Credentials Committee is adopted. Now this brings us up to the report of the Committee on Amendments to the Constitution. I think Mr. Burgee has that report.

REPORT OF THE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION

Presented by Mr. Amon Burgee, of Frederick County, Chairman, pro tem.

Mr. President, in the absence of our Chairman, and at the direction of our Secretary, it is my duty to read to you the report of the Committee on Constitutional Amendments. We are simply trying to do here with our state constitution what I wish it were in my power to do with the constitutions of some of you members,—change it. Some of you are running on the by-laws; you have no constitution! (Laughter) The report is as follows:

In studying the Constitution of the Maryland Agricultural Society—The Maryland Farm Bureau Federation, your committee finds that there are several changes that should be made to put our financial structure in a better working shape, and also to correct one or two little inconsistencies which remain in the Constitution as a result of previous amendments offered in 1925.

FIRST, we recommend that article 3, section 1-a should be amended by substituting the number "50" for "100". Section 1—a should therefore read as follows: Membership of the said County Farm Bureau or similar organization shall be composed of not less than fifty persons (50) who own or operate a farm or whose annual occupation is farming."

Article 3, Section 2, should be amended by striking out the words "for the first quarter" and substituting the following words: "as provided in article 9. Thus making section 2 of article 3 read: "SECTION 2. *Application for Membership.* The County Farm Bureau or similar organization applying for membership in this Federation shall present written application accompanied by dues of its members as provided in article 9, accepting and agreeing to abide by the Constitution and By-Laws and any amendments thereto."

The Committee recommends that Article 9, entitled "Finances" be entirely rewritten. By doing so, it will enable us to get a better form of blanket schedule bond protecting both the county and the state organization. The rewritten article is as follows:

ARTICLE IX

FINANCES

SECTION 1. *Collections of State and National Dues to be Forwarded Monthly.* Each County organization affiliated with the Maryland Farm Bureau Federation, shall forward to the Treasurer of the State organization, not later than the seventh day of each month, all State and National dues collected by the County organization during the preceding month. The total of these State and National dues per individual member shall be four ($4.00) dollars per year of which fifty ($.50) cents shall be for one years subscription to the Maryland Farm Bureau Co-Op and fifty ($.50) cents shall be for one years dues to the American Farm Bureau Federation.

The accounting for and payment to the Maryland Farm Bureau Federation of such dues by the member counties (County Farm Bureaus) shall entitle the members of the County Farm Bureaus to the rights, privileges and services of the Maryland Farm Bureau Federation, as members of such Federation.

SECTION 2. *Blanket Bonds for County Treasurers.* The Maryland Farm Bureau Federation shall require the treasurers of the County Farm Bureaus to give a special bond, provided by the Federation, conditional upon accounting for and paying over to the Federation, dues payable in compliance with the conditions of membership in the Maryland Farm Bureau Federation; and in enforcing the obligation of such bond, the Federation shall have authority to audit and shall audit at least once each year the membership accounts of the several county Farm Bureaus, in order to determine the amounts that may be payable as dues to the Maryland Farm Bureau Federation.

The County organization shall pay sixty (60%) per cent., and the State organization forty (40%) per cent of the premium cost of said bond.

SECTION 3. *Agreements.* The Board of Directors shall have the authority and it shall be its duty to determine the plan of procedure for the enforcement of section 1 and 2 of this Article in order to carry out the terms thereof, through contracts or agreements with the member counties.

SECTION 4. *Annual Dues—Associated Members.* The annual dues of the State Wide Affiliated Organizations, known as associate members, shall be $20.00 per year payable in full by February 15th of each year.

SECTION 5. *Annual Audit of Accounts.* A complete annual audit of the books of this organization shall be made by a public accountant which shall be reported at the annual meeting and published in the annual report.

MR. MERRICK, OF QUEEN ANNE COUNTY: Mr. President, I move the acceptance of the report.

MR. BURDETTE: I second the motion.

(The motion was thereupon duly put and unanimously carried.)

THE PRESIDENT, MR. DAVIS: The motion stands adopted as read. We will now hear the report of our Resolutions Committee.

MR. THOMAS MASSEY: Mr. Young will read the report.

REPORT OF THE RESOLUTIONS COMMITTEE

MR. YOUNG: Mr. Chairman, there are seventeen resolutions that we are prepared to present to you all. Shall I read them *in toto,* or do you wish each read separately?

THE PRESIDENT, MR. DAVIS: We will take the resolutions up separately and either adopt them, or otherwise dispose of them.

Commending the American Farm Bureau Federation

No. 1

We endorse and commend wholeheartedly the work of the American Farm Bureau Federation during the past year. It's Executive Officers and Department heads deserve the highest

appreciation for the faithfulness with which they have cared for the trusts reposed in them.

MR. BRADY: Mr. President, I move the adoption of the resolution as read.

MR. BURGEE: I second the motion.

THE PRESIDENT: Are you ready for the question?

(The question was called for, the motion put and unanimously carried.)

(Mr. Young thereupon read the second resolution.)

Water Power

No. 2

The natural resource, water-power is a heritage which should be developed to benefit all our people rather than to suffer its development to fall into control of monopolistic groups with privileges of lease and operation virtually perpetual in nature. We recommend and urge that Congress and the Legislature of Maryland adopt the policy of ownership and control of storage dam sites as a check on exploitation thereof. A congressional committee to study and report upon the operations of the public utility corporations operating under the Federal Water Power Act, with a view of amending said act so as to secure larger benefits to the public in the development and use of water powers, is urgently recommended.

MR. MASSEY: Mr. President, I move the adoption of that second resolution.

MR. BRADY: I second the motion.

THE PRESIDENT, MR. DAVIS: Are you ready for the question? (The motion was put and unanimously carried.)

(Mr. Young read the third resolution.)

Farm Loan System

No. 3

We are in sympathy with the American Farm Bureau Federation in its efforts to correct any abuses of the Farm Loan System that have occurred in certain parts of this country and we pledge our support to the national organization in any united plan to retain this system under farmer control as this original legislation provided.

We further express our appreciation for the sympathetic attitude of the officers in control of the Federal Land Bank of Baltimore and recommend that a committee of the Maryland Farm Bureau Federation be appointed to confer with the officers and directors of the Federal Land Bank of Baltimore for the purpose of discussing present policies of placing loans and extending credit under the Intermediate Credit Act. Also to study the present basis of control and means whereby this credit can be used to safety, yet legitimately for the encouragement of Co-operative enterprises and to aid farmers as far as possible in the present needs.

MR.. ROYAL MERRICK: Mr. President, I move its adoption.

MR. DUVALL: I second the motion.

THE PRESIDENT, MR. DAVIS: Now are you ready for the question on Resolution No. 3? (The question was called for, the motion put, and unanimously carried.)

THE PRESIDENT, MR. DAVIS: No. 3 stands adopted as read.

MR. YOUNG: Mr. Chairman, for clarity I will read that last resolution at the end of the reading, so it may be numbered among the last. Resolution No. 4:

Co-operative Marketing

No. 4

Our interest in and support and advocacy of co-operative marketing enterprises are constantly to be depended upon. Co-operative marketing of farm products and the purchase of farm supplies are means by which farmers may secure more nearly the profits to which they are entitled.

Co-operative marketing is not only legal and practical but has a social and ethical value in helping to raise agriculture out of its depression.

It is with pleasure that we approve an active participation of our University of Maryland and especially its Agricultural Extension Service with the Farm Bureau in solving the problems of economical production and buying, stimulating co-operative marketing enterprises and others.

Representatives of vocational training are commended for their great interest in Agricultural problems and are encouraged to continue the teaching of co-operative marketing, agricultural economics and rural sociology.

THE PRESIDENT, MR. DAVIS: That is No. 4. I might say, in explanation, that these sheets were gotten off rather hurriedly, and they are not just as plain as they might be, and probably they have not been read as carefully after they have been run off as they might have been; but the shortness of time is the cause of it. So any mistakes I hope you will excuse on that account. Do we have a motion to adopt No. 4?

MR. MERRICK: Mr. President, I so move.

(The motion was seconded by Mr. Duvall, put, and unanimously carried.)

Mr. Young read the next resolution, No. 5.)

Surplus Control

No. 5.

We endorse and recommend the action of the American Farm Bureau Federation in its adoption of it's Annual meeting, December 8th, 1926 of the surplus control resolution which reads as follows:

"The depression in agriculture which first visited the wheat and corn belts now covers the nation. The cumulative effect of the whole purchasing power of farm products over a period of six years makes the situation in agriculture even more acute today than in 1923. There is no business before the national congress more important than the immediate correction of this condition.

Our national program should include those elements necessary to secure stability for agriculture on a basis of equality with other industries in our economic life. To that end we urge the immediate enactment of legislation that will provide for the handling of temporarily unneeded surpluses, as well as surpluses above requirements of the home market, in a manner advantageous to the producer of basic crops and recommend that such legislation provide:

1. Provide a Federal farm board, administering an adequate revolving fund, with whose co-operation surpluses can be actually handled by co-operative agencies created by the farmers, and,
2. Distribute the costs of managing surpluses just as broadly as the resultant benefits are distributed that is over each marketed unit of a particular commodity through an equalization fee.

Necessary relief for agriculture will be secured only if members of Congress, regardless of party, unite to demand immediate action; the American Farm Bureau Federation pledges its whole-hearted support in making a fair national program for agriculture the first business of the present session of the 69th Congress.

While we welcome the co-operation of non-farming groups we believe the prime responsibility of formulating an agricultural policy for the United States lies with the farm organizations.''

THE PRESIDENT, MR. DAVIS: Now, for the sake of knowing who moves and seconds the adoption of these resolutions, I am going to ask anyone moving or seconding the adoption of a resolution to stand up so we will be sure to get your name properly. Is there a motion to adopt this resolution?

(Mr. Merrick moved its adoption, and Mr. Duvall seconded the motion.

THE PRESIDENT, MR. DAVIS: Are you all in favor?

MR. WILLIS: Mr. President, I know the time is limited, and I know everything has gone along smoothly, and I regret very much that I feel it my duty somewhat to add a jarring note to this sentiment, but the resolution that has just been read is, in my judgment, not commensurate to meet the situation. It does not go far enough. It does not put this association on record as advocating any remedy of importance. Now you say that you advocate the government taking care of the surplus. I see the gentleman shaking his head. Read it again; I think it does.

MR. YOUNG (reading): ''First, provide a federal farm board * * * equalization fee.''

MR. MASSEY: The farm board is not the government.

MR. WILLIS: The farm board is not the government, but what does the farm board amount to without the government? You must have an enabling act for a farm board. That enabling act must come from Congress now if you are petitioning now for this enabling act to form this revolving board to take care of the surplus you simply have one end of it. What will you do to remedy the surplus? That's the whole trouble. It's your surplus. You have not added anything to that that's going to show wherein the government will get rid of its sur-

plus. The surplus must be gotten rid of. That's the whole core to the situation, is the surplus on staple crops in this country today.

MR. MASSEY: Mr. Willis, this is more or less word for word as the national organization had it in their annual convention, and we only want to back them up; and after being out there, they had more brains around there scattered all over that place than I expected to see there! (Laughter) And I am perfectly willing to take their solution of it. It is a little too deep for me, and this surplus must be worked out anyhow.

THE SECRETARY, MR. M. MELVIN STEWART: Mr. President, may I talk on this subject just one minute? As I understand it, a bill has already been introduced, Mr. Willis, and President Thompson left this meeting yesterday, went down there to Congress, and was meeting with the committee in Congress last evening right on this very proposition. Now the picture, as I get it, of this set-up is nothing more than this, that the federal government authorizes the appointment of a federal farm board. Take the cotton situation. All right. There is a tremendous crop of cotton.

We have the American Cotton Growers' Exchange in the South. The Alabama Farm Bureau Cotton Growers' Exchange, and the Louisiana Farm Bureau Cotton Growers' Exchange, and the Texas Farm Bureau Cotton Growers' Exchange, and so on, all federated into this American Cotton Exchange. Now this federal farm board, administering an adequate revolving fund (Reads from provision under consideration down to words "farm board.") And the bill says "or designated by the Federal farm board." All right. The farm board designates the American Cotton Growers' Exchange to take charge of the marketing of this surplus of cotton. Now we will say that sixty per cent. of the growers of cotton are in the Exchange. The other forty per cent. are on the outside. It means that the sixty per cent. in the Exchange are carrying the whole burden, or would be carrying the whole burden of the expense of the marketing of this proposition unless the Federal farm board was in existence and operating through the Exchange. They declore an operation period in effect on cotton and that there will be a certain

per cent. per pound assessed against the cotton, and collected at the ginning points. We will say that is collected and brought in and used to defray the whole expense of storing or exporting this cotton. In other words, if we could do as Dr. Bomberger brought out, and have one hundred per cent. or even around ninety-five per cent. of the producers in the organization, then it would not be necessary to have our farm board to distribute and equalize this thing and make every producer pay his proportion of the cost of it. Now it isn't a case of taking a levy from the tax funds of the country. Each particular commodity is paying its particular tax according to what the federal farm board estimates will be necessary to cover the handling of this product.

I don't know whether I have made this thing clear as I have seen it and as I have heard the debate out there in Chicago on this measure.

MR. WILLIS: I don't object to that, Mr. President, but it does seem to me, gentlemen, that the resolution—I don't care whether it was framed or written by the brains of the country at Chicago or not, it doesn't seem to me that it goes far enough for an institution of this kind to adopt; and I do think that the American Farm Bureau Federation, with its great big sounding name, with its idea of betterment of agricultural interests,—I do think that it ought to take a more vigorous and more militant step to enforce its demands. We know that we have a dying agriculture today. Everybody knows that. You have a splendid picture up there, and one of them is equal opportunity. Does any man here believe that agriculture has an equal opportunity today? I don't think so. Now I say that I am not objecting to your resolution, only that it doesn't go far enough; it isn't strong enough. You want this Farm Bureau Federation to stand for something. It ought to stand for a strong, militant demand upon the government that it protect us and find a way out for something that it has gotten us into. (Laughter) It has absolutely gotten us into it. Now you can't get around it. We go there or come here and ask for something. They say "Help yourself." Well, we have always been able to help ourselves until the government came in and helped the other fellow until he got so strong that we could not help

ourselves. That's just the position we are in. And I think, Gentlemen, that this state institution would add strongly to every local in every county here if the locals believed you were doing something that was going to remedy the great situation, and that is to put the staple products of this country on a paying basis. As it is now, we have to cultivate our lands. We cultivate them at a loss. It's only the little things that go to make up the deficiency and give us a living. I don't wish to take up any more time. Please excuse me.

THE PRESIDENT, MR. DAVIS: Would you have any recommendations or any amendments to this resolution?

MR. WILLIS: I would, of course. Now this thing has come on me all at once. (Laughter). As to the resolution, it would require some thought to frame your resolution just exactly to meet what I think is necessary. But I do think we have had a splendid session here, and I have enjoyed it all; we have had splendid entertaining, eloquent speeches and instructive talks. At the same time, we go home, and when we go home what do we say to our people? What do we say to the practical men we are trying to induce to join the local this year, or those who have joined it, and have been members the last three years? "What have you done there?" "Well, we had a good time. We heard some splendid speeches. They all said 'co-operate.'" Now how are we going to co-operate?

THE SECRETARY, MR. STEWART: Mr. President, I might just reply, if I may, to Mr. Willis on this, that I think it has always been found very inadvisable in a resolution to practically put your bill right in the resolution. We have stated here certain principles. A bill has been drafted on that basis. You heard President Thompson say yesterday that the agricultural forces have submitted this bill to Congress, and they have said to them, "Now then, we want this. If you have anything better to submit than this, all right, trot it out. But unless you can bring out something better than this, we want this particular proposition." And this resolution here is doing nothing more than endorsing that particular principle that is outlined in the particular bill. Now I don't know how this convention here can do anything more. If we add something that's just a little bit different than this, the first thing we know we are divided as the four winds of the earth. I think

Mrs. Sewell brought out yesterday that there is a fire; our leaders have concentrated on this proposition, and this is what we want, and we are going to concentrate our streams on this particular fire, and try to put it out in this particular way, and that's what we are trying to do right here.

(The motion was duly put and was unanimously carried.)

Mr. Young read resolution No. 6.

Omnibus

No. 6

We endorse the well established policies of the American Farm Bureau Federation in regard to:

(a) Truth in Fabrics.

(b) Standard containers for fruits and vegetables.

(c) Continued opposition to the principles and practices of branch banking.

(d) Support of selected and restricted immigration with further study of its application.

(e) The eradication of bovine tuberculosis.

(f) Favoring a continuation of farm to market highway construction jointly by the state and federal governments with the same divisions of funds for the respective classes of roads which has heretofore been made.

(g) A continuing scientific study of tariffs from the purely economic point of view.

(h) Developing rates and services for electricity on the farm in keeping with the conditions which must be met.

(i) Opposition to the proposed 20th amendment known as the Child Labor Act, to the Federal Constitution.

MR. BRADY: Mr Chairman, I move the adoption of the resolution.

(The motion was seconded by Mr. Walker.)

THE PRESIDENT, MR. DAVIS: The adoption of the resolution has been moved by Mr. Brady and seconded by Mr. Walker. Is there any discussion?

(The question was called for, the motion was put, and unanimously carried.)

(The Secretary, Mr. Stewart, relieved Mr. Young who had been reading the resolutions. The next resolution presented was No. 7, as follows:)

University of Maryland

No. 7

The Maryland Farm Bureau Federation reaffirms its interest in the University of Maryland and its various agricultural branches including, especially the Extension Service. In view of the fact that the demands, especially for Extension work in Agriculture, Home Economics and Boys and Girls Club work have exceeded by far the funds provided by the Smith-Lever Act in 1924 and Acts Supplementary thereto, we earnestly urge Congress to provide additional funds for this work.

(Mr. Burdett moved, and Mr. Brady seconded the motion, that the resolution be adopted as read.)

THE PRESIDENT, MR. DAVIS: Is there any discussion on this motion? If not—

(The motion was duly put and unanimously carried.)

(THE SECRETARY, MR. STEWART, read No. 8.)

Dairy Industry

No. 8.

Our dairy industry must be protected against adulteration and substitutes, and imported inferior quality dairy products. It is unfair to require the American Dairy Farmer to comply with sanitary and hygienic regulations unless the products of his foreign competitors, when sold in this nation, meet the same requirements.

The large quantities of fats and oils of vegetables, animal and fish origin produced in foreign countries constitute a dire threat to the prosperity of the American Dairy industry unless their importation is restricted or prohibited by tariff rates of amounts comparable to the differences between the costs of producing dairy fats and oils in this country, and the foreign competitive costs.

(Mr. Brady moved the adoption of the resolution. The motion was seconded by Mr. Burdette and Mr. Walker.)

THE PRESIDENT, MR. DAVIS: It has been duly moved and seconded that we adopt No. 8. Is there any discussion on this motion?

(The question was called for, the motion duly put, and unanimously carried.)

(The Secretary, Mr. Stewart, read No. 9.)

Muscle Shoals

No. 9

We endorse most heartily the following resolution adopted by the American Farm Bureau Federation at its Annual meeting on December 8th, 1926:

"Further delay in deciding upon the national policy at Muscles Shoals is indefensible. That policy, when adopted by Congress, must contain among other features the following: A unit lease of the power, fixation plant, and accessories; a fifty-year term of lease; the production of fertilizers containing at least 40 per cent plant food; the elimination of royalties for the use of patented air-fixation processes; the use of Nitrate Plant No. 2; a Farmer Board with adequate functions in regard to cost factors in manufacturing fertilizers and relative to the geographical distribution of same; no separation of power from fertilizer production; a rapid progress to the annual capacity production of the project; and definite assurance without possibility of evasion, that the project will be devoted in peace times to the fixation of atmospheric nitrogen and the making of fertilizers. Under legislation now pending in Congress, this policy can be best advanced by Congress passing the necessary legislation to approve the proposal made under date of April 24, 1926, by the American Cyanamid Company.

THE PRESIDENT, MR. DAVIS: Is there a motion for the adoption of No. 9?

(Mr. Duvall moved, and Mr. Walker seconded the motion, that the resolution be adopted as read.)

THE PRESIDENT, MR. DAVIS: Gentlemen, the adoption of No. 9 has been moved and seconded. Are you ready for the question?

(The question was called for, the motion was put and unanimously carried.)

THE SECRETARY, MR. STEWART, read No. 10.)

Japanese Beetle

No. 10

It is with apprehension we view the spread of the Japanese Beetle throughout the eastern section of this country. We urge the United States Department of Agriculture and our state authorities to use every means within their power to prevent if possible the invasion of this insect, especially into the state of Maryland, and we further urge the U. S. Department of Agriculture to do all possible to eradicate this pest in those areas where it is now found.

We commend the recent action of the Maryland Fruit Growers, florists and others interested in the agriculture of this state, in requesting Governor Albert C. Ritchie to recommend and place in his budget an emergency fund to be used for the control of this insect.

We express our appreciation to Governor Ritchie for his interest in this matter and for having placed in the budget and recommended to the Legislature of Maryland the appropriation of $10,000 for this work.

(Mr. Burdette moved, and Mr. Holter seconded the motion, that the resolution be adopted as read.)

THE PRESIDENT, MR. DAVIS: Are you ready for the question?

(The question was called for, the motion was put, and unanimously carried.)

THE SECRETARY, MR. STEWART: Now we come to Resolution No. 11,—Corn Borer.

Corn Borer

No. 11

The march of the European Corn Borer must be checked and controlled before it spreads over the entire corn belt and beyond. We pledge our undivided support to such emergency plans and to such necessary regulation as may be found indispensable by the Secretary of Agriculture and by our state authorities in carrying forward this work of quarantine and control. Adequate appropriations should be made promptly by Congress to conquer this national menace in its present stronghold and to prevent its further spread.

No lessening of the activities of the U. S. Department of Agriculture or of our own state agricultural agencies in any

of its divisions, bureaus or services, should be advocated with respect to control, eradication and quarantine measures which seek to protect our farms from soil, plant, and live stock pest and diseases.

THE PRESIDENT, MR. DAVIS: Is there a motion to adopt this resolution?

(Mr. Walker moved, and Mr. Burgee seconded the motion, that the resolution be adopted as read. The motion was put and unanimously carried. The Secretary, Mr. Stewart, read Resolution 12.)

Importation—Canned Tomatoes

No. 12

We commend the action of the Executive Committee of the Maryland Farm Bureau Federation for the resolution passed at a meeting on March 8th, 1926 urging that our representatives in Congress work for an increased tariff on canned tomatoes and tomato products.

We trust that petitions or briefs already filed by the National Canners' Association and by the American Farm Bureau Federation in asking that the Tariff Commission make an investigation, will bring in a report permitting a 50% increase in the tariff as allowed under the present law.

(Mr. Brady moved, and Mr. Burgee seconded the motion, that the resolution be adopted as read.)

THE PRESIDENT, MR. DAVIS: Gentlemen, the adoption of this resolution has been moved and seconded. Is there any discussion? If not—

(The motion was duly put and unanimously carried.)

(THE SECRETARY, MR. STEWART, read no. 13.)

Truth in Products

No. 13

The American Public is entitled to know where its food products are grown and the purity thereof. All food and culinary commodities which are grown or produced in foreign countries and imported into the United States, should be required to be so stamped or designated on the container so as to show place of origin and where possible, quality of the product.

We oppose the passage of any bill through Congress which would permit lowering the quality of our foods by adulteration.

(Mr. Brady moved, and Mr. Walker seconded the motion, that the resolution be adopted as read.)

THE PRESIDENT, MR. DAVIS: The adoption of this resolution has been moved and seconded. Are you ready for the question?

(The question was called for, the motion put, and unanimously carried.)

(THE SECRETARY, MR. STEWART, read No. 14.)

Corn Sugar and Corn Syrup

No. 14

Certain measures are now pending in The United States Congress which, if enacted into laws, will allow considerable portion of our foodstuffs to be adulterated with corn syrup and corn sugar without declaring it upon the label.

It should be the inalienable right of each and everyone, to know what we eat and what is being fed to our children.

It is the sense of this convention that each and every commodity sold or offered for sale and intended to be used as food should be labeled exactly what it is and what it contains.

We instruct our Executive officials to present a copy of this resolution to each Senator and to each Congressional Representative from this state, and that they shall be requested to use all their powers and influences to prevent the passage of these bills.

(Mr. Burgee moved, and Mr. Duvall seconded the motion, that the resolution be adopted as read.)

THE PRESIDENT, MR. DAVIS: Gentlemen, the adoption of this resolution has been moved and seconded. Is there any discussion? Are you ready for the question?

(The question was called for, the motion was put, and unanimously carried.-

(THE SECRETARY, MR. STEWART, read No. 15.)

Appreciation

No. 15

We wish to extend our thanks and appreciation to the Management of the Hotel Rennert for the very excellent ser-

vice and co-operation it has rendered this organization and its Affiliated organizations in Annual Convention Assembled during January 4-5-6-7, 1927.

We wish to thank the public press for the manner in which it has given information both before and after the various meetings of the Maryland Farm Bureau Federation and its various Affiliated Associations.

We wish to express our appreciation to all those who have so generously helped to make the program of this Convention a success.

(Mr. Burgee moved, and Mr. Duvall seconded the motion, that the resolution be adopted as read.)

MR. B. B. JONES: Mr. President, may I offer a suggestion?

THE PRESIDENT, MR. DAVIS: Yes sir.

MR. JONES: We generally thank the police department especially by name, after including them in the general proposition, like the third clause there; and I move that the police department be expressly named. I offer that as an amendment to the resolution.

THE PRESIDENT, MR. DAVIS: I don't know whether the police department has had to hold any of you folks or not! (Laughter) They have certainly been very kind to us, and if somebody wishes to second that motion, I see no objection to it.

MR. COCKEY: I second it.

THE PRESIDENT, MR. DAVIS: Now, all in favor of the adoption of this resolution as read and amended—

(The motion was thus put and unanimously carried.)

MR. BURGEE: Mr. Chairman, it seems to me that the last resolution should be published in the press.

THE PRESIDENT, MR. DAVIS: I think so. You fellows want to stand in mighty good with the police some way or other. I don't know what you have been doing! (Laughter)

MR. MASSEY: Mr. President, I would like to make an explanation concerning these resolutions. I believe that most any of you or all of you can appreciate the amount of material here we have had to go over, and it was after one o'clock when we came out of meeting,—I think about the time we started meeting in here. We didn't have a chance to make any corrections after it went through the mimeograph machine. And the next, No. 16, will not be on your paper at all.

The Resolutions Committee has just adopted a substitute for it, and I will read the substitute:

Motor Truck Law

No. 16

Be it Resolved by the Maryland Agricultural Society—The Maryland Farm Bureau Federation, that we petition the State Legislature to amend the present public freight motor vehicle laws to the end and in such manner that all strictly co-operative marketing and trucking organizations be relieved from paying the present franchise fee for motor vehicles used in the transportation to market of milk and perishable farm products produced by their members.

That's in the place of the one you have on your paper.

THE PRESIDENT, MR. DAVIS: Do we have a motion to adopt this resolution?

MR. DUVALL: I move its adoption.

(Mr. Brady seconded the motion.)

THE PRESIDENT, MR. DAVIS: You have heard the resolution as read. I think it's a very important resolution. We would like to have any discussion.

MR. J. W. JONES: Mr. President, I would like to ask the Chairman of the Committee if he intended to put that word "perishable farm products" in. Is it intended to mean only perishable goods?

MR. MASSEY: I beg your pardon?

MR. JONES: Did you intend to put a stress on that "perishable farm products?" That would prevent hauling wool or other farm products to the market. I didn't know whether you wanted to include all perishable farm products.

MR. MASSEY: Milk and other perishable farm products. As I understand, we are not hitting milk. We can cut out the "perishable."

MR. I. W. HEAPS: Mr. President, I would just like to say, gentlemen, that there is no regularly operated truck that hauls any other farm produce that I know of. Cattle may be hauled today or next week or some other time, but there may be a co-operative trucking association that is hauling every day for their members of their co-operative milk organizations. That milk must be hauled every morning, rain or shine, Sun-

day also. As to other commodities of the farm, I don't know of any franchise to pay anyhow. This only applies to the regular trucking system, run every day.

MR. J. W. JONES: On schedule.

MR. HEAPS: It has nothing to do with stock or phosphate or feed, or anything of that kind. There is no franchise on that that I know of.

MR. JONES: We have, in our county, an association that is hauling milk and other things also, but they do not run on schedule time. I have no objection to it. It is perfectly satisfactory to me.

MR. HEAPS: I do not see any reason why it would not cover it.

THE PRESIDENT, MR. DAVIS: Gentlemen, you have heard the reading of this resolution. Is there a motion to adopt it?

MR. I. W. HEAPS: Mr. President, there is a movement all over the State to do away with franchise trucks hauling produce on the State roads. Personally, we have had some experience in the milk business when we did not have franchises, and also when we had co-operatives we didn't pay a franchise when other trucks did pay a franchise. And we have had experience when all but co-operatives didn't have franchises. Now I believe that the farmer who is at least in the milk business must have some regulated transportation; and if you do away with all franchises you have a bad looking business. You will never know who will haul your milk, or how many will haul it. And milk is not like other farm commodities, because the transportation must comply with the health department's regulation. There are certain regulations that apply to the transportation of milk. Now if we are to have no franchise we will in all probability have no regulation in the transportation of milk, and the farmer will be loser in the end by having his product condemned by the health department. So I believe it is to the farmer's interest to have some regulated authority over the transportation of milk. Now we believe that any bona fide co-operative association will provide itself with suitable trucks for that transportation. We believe that in cases where that is not done, the co-operative organizations will be able to employ people who will provide that transportation. Now if we have no franchise at all, it is every Tom, Dick and Harry's

job who can get a few gallons of milk to haul and a truck to start down the road. But when he lands in the city, the health department says "Your milk is condemned," and somebody is in trouble. So my best judgment is that we do want the regulation, but we do not want to pay that price for it. We do not believe that the farmer has a right to pay a franchise to get his milk into market, especially because it is of just the vital interest to the consumer in Baltimore City as to the farmer to get it when they want it and must have it every morning. It should not be classed with other freight. It is perishable and must be delivered under regulation, and 365 days in the year. Therefore we claim the farmer has no right to pay for the privilege of serving the public on a public necessity.

MR. J. W. JONES: Mr. President, do not "other perishable farm products" mean vegetables and such things?

MR. MASSEY: Certainly.

MR. JONES: Why say just milk?

MR. HEAPS: There are other perishable products, and there may be trucking associations.

MR. B. B. JONES: Mr. President, why put the word "perishable" in there. Why not say "farm products?"

MR. HEAPS: Other farm products do not have a franchise.

MR. JONES: It does not apply to them.

THE PRESIDENT, MR. DAVIS: Now folks, if you are all perfectly satisfied with this resolution, we will call for a vote on it. I think it's a good thing myself.

(Whereupon, the motion was put that the resolution be adopted, and was carried unanimously.)

THE SECRETARY, MR. STEWART: Mr. President, we have one more:

Gasoline Tax

No. 17

WHEREAS, an increase of 2½¢ in the gasoline tax for the state has been proposed for the elimination of grade crossings, and aid in the building of lateral roads,—*Be it resolved,* that we feel that farmers are now bearing an over burdened tax and we recognize that this proposal, while equitable to all, will add a considerable burden to our people. We feel it un-

wise to have gas tax on a ½¢ multiple basis under any conditions and recommend that the Board of Directors give careful study to this proposal and confer with our local authorities and take such action in this proposal as our members recommend.

THE SECRETARY, MR. STEWART (in response to a question): The Committee wanted to get away from a multiple of a half cent. They wanted a multiple of a cent,—four or five or three, but not three and one-half or four and one-half.

MR. BRADY: Then you want to add two cents—Is that right?—or four cents instead of two? Does that mean to add two cents to the present two cents?

MR. B. B. JONES: That's the idea.

THE SECRETARY, MR. STEWART: We will read the resolution again. (He does so.)

After "two and one-half cents" verbal interpolation:—an increase here of two and one-half cents, not a new tax, but an increase of two and one-half cents.

MR. BRADY: Yes.

The Secretary concluded reading the resolution in question.

THE SECRCTARY, MR. STEWART: Now the Committee felt that—if I may just discuss this for a minute—this thing has just been sprung just before this convention. There has not been a whole lot of opportunity to go back and develop sentiment as to just where our people stand on this. We do recognize the fact, however, from the experience that has already been brought up, that it is unwise to have a tax on a multiple of a half cent. Therefore, we have gone definitely on record in that respect. We also recognize the fact that farmers are already bearing a good share of the burden of taxation, and even though this increase in gasoline tax is made, is there any assurance there will be any lowering of the property tax? And so the Committee on the whole has felt that here is a matter for a little bit further study, for some more conference work, an opportunity for you directors and delegates to go back home and take this matter up with your people there, and your directors get informed on this, and get the board of directors together again, and we will decide upon a definite policy to pursue when this matter comes up before the legislature.

MR. COCKEY: Mr. President, I move to change the phraseology a little bit to clarify this. Instead of saying "We therefore feel,"—fifth line from the bottom—substitute "We further feel." It seems to be a matter pertaining to itself, instead of coupled up with the other.

MR. WILLIS: Is the resolution debatable at this time?

THE PRESIDENT: There has not been a motion on this yet. As soon as the motion is made—

(Mr. Duvall thereupon made the motion in question.)

MR. WILLIS: This is a small matter, Mr. Chairman. I do not know whether any action we take here will have any influence. I am from the Eastern Shore of Maryland, and I know that the nine counties from the Eastern Shore, through their boards of commissioners, have submitted a bill to the legislature and to the Governor, asking for a one cent additional tax on gasoline that might be applied to the building of the lateral roads. They argue that it's a good thing. We now, in most of the counties, are bonding the county every year for sufficient sums to meet a corresponding sum that the State pays for the building of these lateral roads. The work must go on because when one community gets it the others think they should have it. The consequence is we are faced with a tremendous public county bonded indebtedness. And they thought that it was wise if they could get this one cent gasoline tax so that the traveling public may pay for the roads as they went along. Now that was their excuse; and since Chairman Mackall has taken it up, and wants to couple that with the elimination of the grade crossing, why then, they both have to stand or fall on their merits.

MR. B. B. JONES: Mr. President, I believe I can cite various counties that are looking after this extra tax of one cent to use in their own county; and I think the Government is taking that into consideration. And, of course, we don't want to get mixed up with that. But as the proposition was made, it's a subject for further study, and I think it states here that the board of directors shall give careful study to this proposition, and it's for subsequent development, whatever is to happen; and the resolution as it is is all right.

MR. MASSEY: Mr. President, we don't make any concrete proposition here except to take issue with the one-half cent.

MR. B. B. JONES: I think it's up to the various counties as events develop.

THE PRESIDENT, MR. DAVIS: Now you have heard the resolution; you have heard the discussion. Is there any further discussion? Are you ready for the question.

(The question was called for, the motion was put, and unanimously carried.)

THE SECRETARY, MR. STEWART: Now there's just one more that I had overlooked. It's the eighteenth, one that got in here really by mistake under No. 3, the last paragraph. It will be resolution No. 18.

Lenroot-Taber Milk Bill

No. 18

Resolved, that the Maryland Farm Bureau Federation, now in session heartily endorses the Lenroot-Taber Bill, providing sanitary regulations governing the importation of milk and cream, which bill is now before the U. S. Senate for action and urges the Senators from Maryland to support the measure in the interest of the public health and the welfare of the dairy farmer.

THE PRESIDENT, MR. DAVIS: Now I think that—while our time is running along pretty fast— I think Mr. Heaps can give us a little further light on that. To have that resolution read and adopted just as it is, you might think there is not much to it; but I think Mr. Heaps can tell us in a few words that there is quite a lot to it.

MR. I. W. HEAPS: Mr. Chairman and Gentlemen: This question is partly covered in the resolution under "Dairying" or "Dairy Marketing." However—

THE SECRETARY, MR. STEWART: Under Resolution No. 8, "Dairy Industry."

MR. HEAPS (Continuing): It's partially covered there, but this separate resolution has a very distinct significance at this time. This Lenroot-Taber Bill has been in Congress for some little time, and has finally gotten onto the floor and was passed by the House and is in the Senate, and I got a telephone call this morning from Washington saying that our Senator, Mr. Bruce, was fighting the bill. Now this bill is of vital interest to the dairymen in the United States because there are enor-

mous amounts of cream and other dairy products produced in Canada, shipped into the United States, and sold in competition with our product. The Canadian and foreign product has no regulations that I know of. We are in this country producing milk more and more under the most strict sanitary regulations, and we can not continue to do it in competition with that foreign product. Now take, for instance, practically all the markets today are demanding milk produced from tuberculin tested cows, and the farmers are meeting enormous losses in the loss of many active cows, and the high price they have to pay for cows. And we can not continue to go on meeting that outside competition. It was the thought of the Secretary of our National Milk Producers' Federation, knowing your organization was in session, to get you to pass a resolution urging the passage of this bill, and to wire Senator Bruce to do all in his power to have this measure passed in the Senate. Now I feel that this is something that needs immediate attention and rather drastic measures probably, because it certainly means a lot to the dairy industry of our United States.

(Mr. Michael moved, and Mr. Walker seconded the motion, that the resolution be adopted as read.)

THE PRESIDENT, MR. DAVIS: Are you ready for the question?

(The question was called for, the motion was put, and unanimously carried.)

MR. MASSEY: I move that the resolutions be adopted as a whole as read.

MR. MERRICK: I second the motion.

THE PRESIDENT, MR. DAVIS: It has been moved and seconded that the resolutions be adopted as a whole as read. Are you ready for the question?

(The question was called for, the motion was put and unanimously carried.)

THE PRESIDENT, MR. DAVIS: The resolutions are adopted as read. Now, there's another thing that should be attended to in this respect, and that is a motion to send a telegram to Senator Bruce at Washington from this convention as in session so that we may give it any added strength we can.

MR. COHILL: I so move, Mr. Chairman.

(Senator Snader and Mr. Duvall seconded the motion, which was put and unanimously carried.)

THE PRESIDENT, MR. DAVIS: We will see that a telegram is sent from this convention in session.

THE PRESIDENT, MR. DAVIS: I want to say that if, in this afternoon's session, I have seemed to hurry along and not given full time for discussion or anything of the kind, the only apology I have to make is that I knew our time was short; in other words, we started late. Now there may have been a cause for that. I used to think sometimes, when the boys got out and were not doing quite a full day's work, that perhaps they had been out late the night before; and I think perhaps that will apply to this meeting! (Laughter.) So I hope if I have been rather abrupt and hurried in this matter, you will all consider the conditions under which we are working, and pardon me if I have seemed to be rather hurried or abrupt. It was not intentional, but it was because I did know that a lot of our members had to leave rather hurriedly in order to catch trains or busses, and we had a lot to do.

MR. COHILL: The president has asked me temporarily to preside while he is being elected president! (Laughter as Mr. Cohill assumes chair.)

THE SECRETARY, MR. STEWART: I want to testify right here. You know I have worked beside these two old cronies here, and Mr. Cohill put one over on Mr. Davis right then. (Laughter). But, folks, the other night, in the directors' meeting,—on Wednesday night,—the constitution of this organization provides that the board of directors serve as a nominating committee. The board of directors, serving as that nominating committee, nominated Mr. James W. Davis for president, and Mr. E. Thomas Massey for vice-president.

MR. COHILL (temporarily in the chair): Are there any other nominations?

MR. B. B. JONES: I move the nominations be closed, sir. (Laughter). We have a right to nominate from the floor.

MR. DUVALL: I second the motion.

MR. COCKEY: I move that our secretary cast a ballot for the two nominees in question.

MR. COHILL: We have a motion of Mr. Jones, that nominations be closed.

(The motion was put and unanimously carried.)

MR.. COCKEY: I move that our secretary cast the ballot for Mr. James W. Davis for president and Mr. E. Thomas Massey for vice-president.

MR. HOLTER: I second the motion.

(The motion was put and unanimously carried.)

THE SECRETARY, MR. STEWART: The secretary herewith casts the ballot for James W. Davis for president, and E. Thomas Massey, for vice-president.

MR. COHILL: Now, Mr. Davis, it's up to you to make a nice speech. (Applause). And now I declare him elected! (Laughter and applause).

MR. DAVIS: I have talked so much during the last three or four days, I should think you folks would all be heartily glad if I wouldn't talk any more. We have all been under rather high tension this afternoon, and I haven't any speech. I haven't anything to say, only that I do appreciate the hearty response you have all given whenever you have been called on during this convention to do anything. I won't refer any more to the fact that you were out to a frolic last night and started late today, but you have all given us every support. And I do want to say that any success that we have attained in this convention has been due to the untiring efforts of our Secretary, Mr. Stewart, and our committees and our board of directors, and the support we have had of the members. I certainly thank you for the honor you have conferred on me in electing me president for the coming year. I am very conscious of the lame administration we gave you during the past year as far as I was concerned, and I only hope that we will be able to do better in the ensuing year.

I think that's enough of a speech. You would be surprised if I said much more, and I will thank you all and sit down. (Applause).

I do not think we should close this without having a word from our newly elected vice-president. I want to say that his heart's in the right place. He has done everything possible to back me up, and I rather included him in the board of directors. I, however, was informed that he wasn't in the board of directors, and was vice-president. But I must say I have

never called on Mr. Massey to do anything for the good of the Farm Bureau that he hasn't done it. I called on him one day two or three weeks ago to drive better than a hundred miles to address a meeting. He said it was rather a hard trip, but that he couldn't very well back out; and he has always done everything he could, and done it cheerfully, and done it efficiently. And I can not say too much to express my appreciation of the support that Mr. Massey has given us. But I would like to hear him say a few words for himself. (Applause).

THE VICE-PRESIDENT-ELECT, MR. E. THOMAS MASSEY: Mr. President, Ladies and Gentlemen: I thank Mr. Davis for those kind words. While I appreciate this honor very much,—and it is a great honor,—really I would rather not serve in these offices. But I am here to uphold the hands of the President, and I will see that I do it next year as I have done it in the past. And I thank you again for this great honor, which I appreciate very much. (Applause).

THE PRESIDENT, MR. DAVIS: Now we come to the point on our program of unfinished business. Is there any such business to be brought up? There doesn't see to be any now. Is there any new business? Now we have Mr. Bowen here, and I really owe him an apology for breaking in on him a while ago; and if he can say a few words to us, we certainly will appreciate it. (Applause).

MR. BOWEN: Mr. President, I understand that your time was limited, and the people going away. The only thing I wanted to say was this, that I felt that Dr. Bomberger had presented a very valuable paper to our Farm Bureau, and that we were wrestling with the problem that his paper seemed to solve better than any paper I heard. Of course, I certainly understand about the various co-operative movements in the country, and Denmark has always been pointed out to us as a model, and Dr. Bomberger was sent to study it as an expert; and the result of his study should be presented, in my opinion, to people who need that information. And I intended to compliment Dr. Bomberger by openly asking him to attend a meeting and present the results of those studies to our people.

Our problem in southern Maryland is the article tobacco. You would be surprised to know that we have lived on a product—now, I apologize for this, because I am sorry for it. We

ship a very valuable product. It has wonderful possibilities. But what do we do? We do not encourage it. We want to break this thing up. They are misrepresenting the tobacco in the hogsheads that the sample doesn't tell a thing about. Now we can not get anywhere that way, can we? Yet we have traveled just three hundred years with that kind of thing. Now, we want to build our tobacco business on quality in products, represented by a sample. Now, Dr. Bomberger comes down there with a paper, and shows our people what these others have done. That's the reason why Dr. Bomberger's work is really great. If he never taught another boy in the University of Maryland, but could go around and talk to the farmers, he would do a greater service than by being a pedagog. And representing our county—one of the best in the State, so far as loyalty to the organization is concerned,—I extend to Dr. Bomberger an invitation to visit our county, and present at a meeting the results of his studies last summer. I thank you, Mr. President. (Applause).

THE PRESIDENT, MR. DAVIS: Has anybody else anything to say? We are up to the point of adjournment. Now, I might say at this time that Mrs. Williams, of Kent County, has been elected as chairman of the Home and Community Committee. I hope you will all give Mrs. Williams the same support you gave Mrs. Jones. And I do not believe it would be a proper thing for this convention to adjourn without a motion of appreciation for the untiring work that Mrs. Jones has done since she has occupied this responsible position. (Applause).

MRS. M. MELVIN STEWART: Mr. President, I would be very glad to make that motion. Perhaps it should come from one of the women who have worked with her,—a motion expressing our appreciation to Mrs. Jones.

MRS. BELT, OF CALVERT COUNTY: I second the motion.

THE PRESIDENT, MR. DAVIS: Now I don't know whether you heard this motion. Mrs. Stewart talked as though she had been out a little late last night. (Laughter.) And I don't know whether you folks back there heard it. But anyhow, the motion was one of approval for the untiring and sincere work that Mrs. Jones has done in the last three years of her chairmanship of the Home and Community Committee. I think that that vote, if you want my opinion about it, should be

unanimous, because Mrs. Jones certainly has been very faithful in attending every meeting and doing everything she could to promote the advancement of the welfare of the Home and Community Committee.

MR. MASSEY: Let's take a standing vote.

THE PRESIDENT, MR. DAVIS: Now I think we should take a standing vote on this, because you are all tired of sitting down anyhow! (Laughter as unanimous expression results from standing vote.)

Now if there is nothing further, the convention is adjourned.

(Whereupon, at 4:18 o'clock P. M., the eleventh annual meeting of the Maryland Agricultural Society—Maryland Farm Bureau Federation was adjourned *sine die*.)

REPORT

OF

Twenty-Ninth Annual Meeting

OF THE

Maryland State Horticultural Society

FIRST SESSION

Tuesday Morning, January 4th, 1927

Baltimore, Maryland

The twenty-ninth annual meeting of the Maryland State Horticultural Society was convened in the auditorium of the Odd Fellows' Hall, Baltimore, Maryland, Tuesday morning, January 4th, 1927, at nine o'clock, with the President, Mr. J. Walter Englar, presiding.

THE PRESIDENT, MR. ENGLAR: The meeting will please come to order. I am so glad to see so many here this morning. Suppose we have a word of prayer.

Our Gracious Father, we thank Thee for life, this morning. We thank Thee that Thou has kept us, and that Thou has led us all the way along through the journeys of life up unto this present moment. We thank Thee that we have always found Thee standing steadfast and ready to encourage and help to make our life worth while. Our Father, we come to Thee as a little group representing certain lines of industry here. We thank Thee that Thou hast been so good to us this year. Thou hast given us a bountiful crop, and Thou hast enabled us to produce something for man's sustenance. This morning we are here, Father, for strength, encouragement and teaching. May we all be open in heart to receive Thy truth, and may we be positive and determined to do that which is right before Thee and may Thy will be done, at last, by each of us standing before Thee this day. We ask in Jesus' name. *Amen.*

The first number on our program is the report from our secretary-treasurer, Mr. Canby.

REPORT OF THE SECRETARY-TREASURER

By G. RUST CANBY, Silver Springs, Maryland

Mr. President, Members of the Horticultural Society:

Since we last met we have harvested a crop of fruit probably never quite equalled for quantity and qaulity, it having taxed our storage facilities to bulging proportions and confronted us with the biggest jobs of marketing that we ever experienced. I am sure that this condition, together with slightly varied habits of aphids and leaf hopper, etc. emphasize the advisability of a more comprehensive advertising of apples.

The benefits derived from thinning were practiced, the most efficient orchard culture to meet conditions as they prevailed over last season, and many other phases of the work have suggested to you many questions and opinions that we might exchange to great advantage and should make this a very helpful message.

We have provided a program covering these subjects and placed them in most capable hands. I feel that we are very fortunate in securing these men whose names appear on the program. ,

I might say in connection with our publications that I have had something of real value to convey to our members. In addition to these we issued a warning against spray residue, making recommendations as to a revised spray schedule. These precautions were observed and our fruit, as a result, showed a pronounced freedom from any poison. Just what effect the change had upon insect injury I imagine will be brought out in this meeting, and will have to be considered upon the basis of a season of favorable weather for fruit production.

Still another letter indorsed the Apples for Health campaign.

I might say in connection with our publications that I have felt it to be for the best interest of the association that the mailing list be revised, but I can assure you that each and every one will have an opportunity to pay his dues and thereby maintain his position on said list.

There seems to be an ever increasing interest among the growers in equipment and facilities for the prompt and economical handling of the fruit crop, and I wonder if it would not be a good idea to have a display of such machinery in connection with our winter meetings. This would afford our members a splendid opportunity to inspect and compare the several lines of supplies and might be handled without additional cost to the association.

I feel that I would be very remiss or ungrateful if I didn't register in behalf of the association, our appreciation of the co-operation on the part of the Department of Horticulture at College Park. I consider it a real asset to the orchard interest of our State.

As Treasurer I beg to report a balance of $83.86 and request that a committee be appointed to go over the accounts.

ANNUAL ADDRESS OF THE PRESIDENT

By J. WALTER ENGLAR, New Windsor, Maryland

Members of the Maryland State Horticultural Society:

It seems essential in this meeting that the President have a little address. I think it is a mighty good thing, sometimes to shift the Presidency around from one grower to another, because this convention is only an annual happening, and I think that it is sometimes a fine thing if they happen to hit upon a farmer who can make an address, but that is not the rule—it is the exception.

Your President has not been very active, and therefore does not have much to report, and surely I won't be compelled to take much of the Society's valuable time.

We had a number of very interesting meetings, and I am glad to say that we had the co-operation of the executive committee in all of those. I want to speak particularly of the meeting that was conducted at the College. It was held for a week, under the auspices of the Department of Horticulture of the University of Maryland, and I think it was the most interesting and helpful meeting ever held in the state, and I find that everywhere I went this summer they have been talking about that meeting at College Park, and if we can have, during the next two days, a meeting in any way like that at

College Park we will be well repaid for coming over here in this inclement weather.

The executive committee arranged a summer meeting and we accepted Senator Harrison's invitation to meet at his home at Ocean City, and we were very royally entertained. We were conducted through his orchards and he gave us an explanation of his experimental plots which are being carried there under the direction of Dr. E. C. Auchter. It was most interesting for everything is carried out in a systematic and harmonious way.

Three thousand guests were served with luncheon and we had a full programme and an excellent time after lunch. We were addressed by Governor Ritchie, and by the Chairman of the Chamber of Commerce at Wilmington and others; then in the evening we had a very interesting and helpful session. Then again, at Ocean City, during the last week in May we had another very interesting and helpful conference session on weights and measures and a great many members attended in addition to Dr. Bomberger and officers of the Farm Bureau. Also Governor Ritchie attended that conference.

Then on August 13th a conference was held in Baltimore under the auspices of the State Horticultural Society and I want to thank those who helped us for the wise counsel that was passed out to us as growers and I want to state that as a result of this advice, I don't know that Maryland fruits have come into any difficulties anywhere, either in this District or foreign markets and I don't know any instance where Maryland fruit has been discriminated against, anywhere. We have fine horticulturists and etomologists and others in the state and through their efficient efforts we have been able to raise a profitable fruit crop in this district. I think that prevailing conditions this year have done as much to teach us how to pack fruit as anything that we have had heretofore.

I have just one point, though, that I want to call to your attention and would like to have you keep in mind the recommendations that were made at the Apple Packer's convention in Buffalo. On a table outside the hall there was an exhibit, of four rows of barreled apples that had been gathered up from the different storage houses and had been covered up with a cloth and when the cloth was raised up there on this

table was the worst looking stuff that you could imagine and yet it had actually gone into the storage and some of it was Maryland fruit that we had sent out in packages to our warehousemen. The one in charge said, "Gentlemen, you have just two things that you can do. You can keep on doing this sort of thing, and head for bankruptcy, or else you can make up your minds that you can, and must, prepare a proper package." None of us of course would admit that we had ever put anything like that in a package. I believe that he went out and picked out the worst looking apples he could find out of the different packages. But the fact remained that those were apples that we had sent to storage and had been accepted and placed in storage.

It wouldn't do to admit the responsibility of our organization for stuff of that kind and so I told him that in our places, we couldn't imagine anything like this.

As growers of the state of Maryland I believe we should voice a fervent prayer that the terrible ravages of the Japanese beetle and other pests may be confined within their present area and may be speedily eradicated there.

I would like also to make this one recommendation; that is, that sometime before we adjourn, in the next few days, we go on record as heartily endorsing the plans of the proposed new horticultural building to be built at College Park, and that we do everything that we possibly can to help to secure that appropriation from the present legislature that was asked for by Dr. Pearson and the Board of Regents in the budget that they recently presented to the Governor.

I think it is quite important that someone keep in very close touch with the matter and I believe that a sincere word of appreciation, further, is due to the state Department of Markets for the information that they have disseminated through bulletins on crop conditions and fruit marketing topics.

I feel that a word of thanks is due our Secretary in calling our attention to the new regulations in regard to the shipping point inspection and for the aid that they have rendered us. I am just a little bit skeptical when some of you say that this inspection is going to injure our business. Every line of production has its inspection service; our hay is inspected at the shipping point, our eggs and live poultry are inspected, and I

now understand that in some of the states they are going to make a man be inspected before he can get married. I think that is a mighty good thing because if you could see some of the stuff that comes down to my house to get married I think you would agree with me. Now I will not take any more of your valuable time because our time is getting away and I think we should get the full good of our meeting, which is going to be possible because I know each of our speakers has something worth while to explain to you.

THE PRESIDENT, MR. ENGLAR: The next on the programme this morning is an address by Prof. Joseph Oskamp. He has had wide experience in Indiana and Missouri and is now teaching in New York State. I am sure that he has a lot of information to bring to us this morning. (Applause)

PRUNING YOUNG AND OLD APPLE TREES FROM THE STANDPOINT OF STRENGTH OF TREE, EARLINESS OF BEARING AND CONTINUED PROFITABLE COMMERCIAL PRODUCTION

BY PROFESSOR JOSEPH OSKAMP, Cornell University, Ithaca, New York

Mr. President and Members of the Maryland Horticultural Society:

Coming from New York I would like to bring you the greetings of our society and would say that if any of you should have an opportunity to come up to our meeting, which comes next week, January 7 to 12, I am sure you will find the programme of interest and I know we will be glad to have you with us.

I have commented several times in the past week on the weather which you have in this section. I have been around in this general section for several weeks and while you may find today a little depressing I am inclined to think it is a little bit better than the weather up around Ithaca. The weather up there has been around zero and so it is a good deal like going to Florida to come down into this climate. Up home we think a good deal of you people, anyway.

I notice that I am down here for an address, but that is —I think— a little too formal. What it will really be, if *I*

have anything to do with it, will be an informal discussion between you and me, and if anybody wants to ask me any questions or interrupt at any time I hope you will feel free to do so.

The title of this talk, on the programme, is very comprehensive indeed and if we cover that topic as comprehensively as it is stated in the program, we are going to have to cover a god deal of ground this morning.

While pruning is a very ancient art, its principles are less clearly understood than many of our orchard practices. There is an extended literature on pruning dating from the early centuries, it is true, but it is only in comparatively recent years that any one has thought it worth while to go to the tree with the question of how best to prune. Prior to this time the information handed down was largely based on theories and old superstitions. In view of the present day knowledge which has been gained from careful experiments with fruit trees, there is a tendency both among horticultural leaders and fruit growers to approach a common ground. Recommendations are yet diverse and that will always be so to a certain extent, for the conditions of climate, soil and culture make necessary modifications in the pruning treatment.

While the essential principles of pruning therefore are rather thoroughly defined, the practice of pruning must be done with a full knowledge of, and harmonized with, the general orchard, and growing conditions surrounding the trees. An orchard on rich soil requires different treatment than one on poor soil. Also, varieties need to be handled somewhat differently. Varieties making a long, leggy growth, like York Imperial may require some cutting back whereas Grimes Golden, a more branching variety may need none.

Effects of Too Much Pruning on Young Trees

It has been definitely shown that pruning dwarfs the young tree and delays its bearing, although there are still good reasons for doing some pruning. Growth and production are retarded because the tree is deprived of foliage. In pruning away wood, buds which would open into leaves are cut off. We seldom fully realize the importance of the leaf surface to a tree. We sometimes hear, to use a popular phrase, that the

leaves are "the lungs" of the tree; but really they are more than that, for, speaking in a popular way, they are also the "stomach" of the tree. Most persons are familiar with the fact that the roots supply the tree with water and crude mineral elements from the soil; but few understand that the leaves also supply a very essential raw food from the air, and that all these raw foods, both from the soil and from the air, must first be combined and manufactured within the leaf, into more highly refined food products,—before they can contribute to the growth of the tree or of the root system. When a twig or a limb is cut from a tree, the leaf surface is reduced, and thus to that extent the possibilities of the tree to nourish itself are retarded. Therefore, the growth of the tree top and also the root system is diminished on pruned trees.

An opinion commonly held is that considerable annual pruning is very desirable for the young tree. Some growers have pretty generally cut back the annual growth each year, while others have confined their pruning more to thinning out the limbs and the shorter growths. Such a practice, if persisted in year after year, is certain to keep the tree small and unproductive for a long period. The quicker the tree can be grown to a large proportion, the quicker it will come into profitable bearing. Any considerable amount of pruning one year is almost sure to necessitate more pruning the next year, for many of the buds which would otherwise lie dormant or simply "spur up" are forced into a vegetative growth, which makes so many crossing and crowded limbs that pruning is almost unavoidable the next year.

Water sprouts are generally the result of too heavy pruning, and when a grower has become convinced that he is pruning too much, he frequently wonders why, if the leaves are so important, it might not be better to let the water sprouts remain for a year or two and then cut them out. The fact is, however, that a shoot growing as rapidly as does a water sprout makes very little contribution to the tree as a whole, while the sprout is so extremely vegetative. The sooner such sprouts are taken out, therefore, the better; and this is one place where summer pruning may be an advantage, for the water sprouts can be conveniently rubbed off in June when

they are tender and succulent, and when they will not be so apt to come back.

Height of Head

We frequently hear the point stressed that high-headed trees are unprofitable because it cost more to spray and prune them and to pick the fruit. There is still another good reason against high-headed trees: a distinct loss in early production results. On the other hand, there is no object in having the limbs originate too close to the ground. When trees are lying on the ground, wiring for rabbits and mice and worming for borers are distinctly more laborious. A happy medium is desirable, and this would probably be from about two to three feet.

It is best to head the tree at the desired height at planting time rather than later. It would probably be wise not to purchase two year old trees from the nursery unless they have been headed at about the desired height. If the head is too low and all the lateral branches have to be cut off, the tree is practically set back to a yearling. One buys a two year old tree and pays more for it because it has the advantage of two years of growth; if then, he must cut off the growth of the past year, he is the loser. In such a case it is better to purchase a good, strong, yearling tree, and to cut it back several inches above the point where the lowest limbs are wanted.

Form of Training

In starting a young orchard, one of the first problems that presents itself is the "form" to which the trees are to be trained. There are several well established shapes in use at the present time, and these are so well known that it is needless to enumerate them. From what has already been said, one can easily judge that it is inadvisable to be too exacting about "form" in apple trees. A tree may be caused to assume almost any desired shape by sufficient cutting and selection of branches; but with a decided sacrifice in growth and production. For this reason it seldom pays to deliberately force a tree too much out of its natural habit. Where good growth and early production are desired, therefore, the tree should be largely permitted to shape itself.

At the same time, the tree should not be allowed to become a mass of crowding, interfering and competing limbs. It is while the tree is young that such things should be effectively remedied, for improper building of the framework at this time can seldom be adequately corrected later. It is important to grow a strong tree that will be long lived and of such proportions that it can easily be cared for. It takes some, but not a great deal, of pruning, to accomplish this purpose.

Building the Framework

In pruning at planting time, we are interested in establishing the height of the head, and that is done by cutting off all the branches which originate lower down on the trunk than is desired. The remainder of the scaffold branches may be left, but usually not more than three branches should arise near any one point, because of the danger of splitting later on. With most two-year-old trees that have been properly headed in the nursery, at least an uppermost branch and two laterals can be selected the first year. It would appear to be wise to cut back these branches one-third to one-half, to more nearly balance the top with the root system, leaving the uppermost branch distinctly in the lead.

In later years, it is well to keep this uppermost branch in the lead by cutting back any of the scaffold limbs which tend to become as tall. This will materially strengthen the main crotches. Additional scaffold limbs are grown from year to year, and finally, if the uppermost branch is becoming very tall and straight, it may be directed outward by heading back to a well-placed side branch. A systematic heading back, however, is not desired, for this tends to force the growth of many shoots from near the same point on the branches and thus makes necessary the continual removal of wood.

Growth which tends to seriously compete with or to crowd out the main framework branches is either reduced or removed from time to time. Limbs so close together and so crowded that it is impossible to develop laterals from them except many feet from the trunk should not be retained as permanent limbs. Also, two limbs should not be allowed to parallel each other for it is not possible to grow suitable secondary branches from the side of either of the two limbs that

faces the other. It is better to develop but one limb with a normal distribution of side branches.

Bad Crotches

One of the chief concerns, as the young tree develops and particularly during the first few years, is to avoid bad crotches. Attention should here, again, be called to the fact that pruning is a dwarfing process, and that the branch or the limb which is cut the most will grow the least. Thus, having two shoots of equal length arising at the same point so as to form an undesirable crotch, cut one of them back severely if it is advisable to save both. The unpruned shoot will then take the lead, thicken up, and become the larger; the pruned shoot will develop into a smaller lateral branch. The same principle may be applied to maintaining a balance between various parts of the tree, if so desired, by pruning those branches which must be discouraged. This condition of a fork or an unequal armed crotch is one of the worst, and is almost sure to result in splitting later on. It can be easily corrected while the tree is young, however, and with comparatively little pruning.

Certain limbs, because of their narrow angle of cleavage with the trunk, will always form weak crotches. Such limbs should be watched for in the young tree, and removed entirely, when it will involve little pruning.

Some varieties are more subject to weak crotches than others. In such varieties, or in cases where weak crotches have not received attention during the first few years, some form of bracing is almost sure to be needed. This can be satisfactorily done by the use of screw eyes and heavy galvanized wire. The mistake should not be made of putting the brace in too near the point of the crotch; it should be placed six or eight feet up on the limbs, where the support will be more effective.

Height and Density of Top

Many persons worry over the young trees getting tall, and feel that they should be cut back each year to keep them low. Such a practice will only cause the tree to be that much longer in reaching bearing size. The tree may be allowed to grow

about as tall as one wants it to get before concern need be felt in this regard. The tree, too, may seem too upright and thick in the center; but as soon as it begins to bear, the weight of the fruit will spread it and open it up suprisingly. Then, too a "brushy" center actually aids in spreading the top because new growth naturally seeks the more open, well-lighted spaces.

Also the interference between the smaller twigs, and the spurs toward the center of the tree need not be a source of anxiety. These will seldom become prominent, competing branches, and should be left alone. for they contribute in a very large measure to the growth of the rest of the tree and are an important factor in early production. Despite these facts, some growers cannot resist the temptation to "clean up" the interiors of their trees and strip them bare of growth.

Difference in Pruning Young and Old Trees

Common observation indicates that mature trees will derive benefit from considerably more pruning than would be advantageous for young trees. The most important single truth of value in pruning old trees is the fact that pruning invigorates. Everyone is familiar with the rank growth of supernumerary water sprouts which spring up when a limb of any size is cut back, or broken off in a storm. This is largely because the water and mineral nutrients from the roots now has a proportionately smaller tree to supply. Thus, for a brief time more abundant water and nitrates are provided to those branches remaining. This is an extreme case of invigoration, but the fruit grower is interested in essentially the same thing. He desires a general improvement, in the growth conditions over the tree,—a longer growth of terminals and fruit spurs, which provides for new fruit spurs and an invigoration of the old ones.

While any considerable amount of pruning reduces the growth and delays the profitable bearing age of young trees there will be a necessity for more pruning as the trees grow older. From what has already been said this may appear to be an anomalous statement. However, the fact is that while pruning is a dwarfing process, it has at the same time a stimulating effect on growth; the shoots are generally longer, but

the number of growing points are less and the total growth does not compensate for that cut away plus what would have normally occurred. The apparent contradiction comes about because on the one hand we wish to have the young tree reach profitable bearing as early as possible, which places the emphasis on the injuriously dwarfing effect of pruning (invigoration is not of interest as young trees are growing rapidly) and in the old tree, on the other hand, we desire more regular crops of large size fruit (the dwarfing effect of pruning on mature trees ceases to be a disadvantage) which places the emphasis on invigoration. In other words we wish the young tree to arrive speedily at bearing proportions with a good fruit spur system. This means the accumulation not the cutting away of old wood, while in the old tree the dwarfing effect of pruning is rather an advantage as most old trees are too large anyway, and the reduction in fruit spurs incident to pruning results in a better set on those that remain.

Renewal Pruning for Older Trees

Thus it happens that young trees flourish for quite some years without much pruning, but there will come a time when more pruning will be needed for its invigorating effect, to keep the tree within bounds and to prevent the lower limbs and branches from being shaded to death. This time will depend upon the variety, the soil, the distance of planting and upon the care the trees have had. It is, however, rather the condition of the tree which is important and which age only roughly approximates. When fruit trees in spite of good care begin to slow down in growth, produce small fruit, or fail to set the usual number of blossoms, a more severe type of pruning may be helpful. The start may be made by cutting out branches in the lower part of the tree that have become weakened by shading. This will probably be sufficient for a year or two and then smaller branches throughout the top of the tree can well be thinned, cut or cut back to lateral branches in such a way as to distribute the fruiting wood and admit more light to the lower branches. This type of pruning for lack of a more appropriate term can be referred to as renewal pruning and will consist largely in removing limbs from an inch to an inch and a half in diameter particularly in the

upper third of the tree. In well cared for orchards it will be continued as a regular practice as the tree grows older, its severity being governed by the needs of the tree. Finally, when the trees conveniently occupy the space alloted to them in the orchard they should be kept at that size by each time thinning out the longest branches by cutting back to laterals.

Lowering the Tops of Old Trees

Tall trees with strong healthy side branches within reasonable distance of the ground may have the desired amount of top taken off to good advantage at one pruning. However, if most of the lower branches are weak it would generally be better to cut back so as to leave healthy side branches. When the trees show increased vigor and the lower branches become more active the top may be still further lowered. It is useless to prune a limb or branch so that few healthy leaves remain on it. In most such cases death ensues. This is particularly true of heading-in lower limbs on a none too vigorous tree. Such limbs are generally of the mule tail fashion, mostly bare except for a fringe of growth at the end. In heading-back, the most vigorous part of the limb and about all the healthy leaves are cut off and the limb dies. This is a good example of the fact that leaves are necessary to mature the wood and keep it alive.

Removing Large Limbs and Low Hanging Branches

The popular notion of opening trees up to admit light and air often involves a form of tree butchery all too common in old orchards. Large limbs are taken completely out of the center and the interior is more or less cleaned bare of growth. Sun-scald, borers and canker result, wood decaying organisms gain entrance to the tree and its years are numbered. It is often true in such cases that too many scaffold limbs were allowed to start near one point when the tree was young, making the center crowded, but this late day is no time to make drastic alterations in the framework. It is seldom advisable to remove entirely or nearly so, large, main limbs from mature trees, unless absolutely necessary because of disease or decay. The idea of letting in the light is a good one and important but the pruning should be distributed in

such a manner that the light will diffuse equally through the tree, rather than letting a flood of light in the center and leaving other portions of the tree over-shaded.

The actual situation in many old orchards is that the outer fourth of the tree top is a tangled mass of feeble fruit spurs, densely shaded, making scarcely any growth and lacking sufficient vitality to set fruit. The kind of pruning that will probably be the most helpful in these circumstances is the renewal pruning already referred to. By thinning out a portion of these older spur bearing branches, proportionately more light, water and food is left to those branches remaining. Thus will their chances for setting fruit be improved. The excellence of a pruning job is not to be judged by the amount of cord wood, in evidence, but rather by the small diameter of the brush on the ground.

Low hanging branches are frequently troublesome in older orchards. Not that the tree is headed too low, but the repeated weight of many heavy crops has brought the ends of the branches down. The habit of the variety too has much to do with this. The condition can be remedied by cutting the drooping end of the limb back to an upward inclining branch and removing low hanging secondary branches. This is preferable to cutting off these lower limbs entirely.

In lowering the tops of old trees the limbs are sometimes cut off square like a hedge fence without reference to where the lateral branches originate. Better results will be obtained if the cuts are made at rather large lateral branches. The vigor of the lateral branches will be promoted and fewer water sprouts will result. Following any heavy pruning, however, there will generally be water sprouts to cut out, but they are not always without a useful purpose. Here and there over the tree wherever there is room for new branches to be developed at suitable distance from the ground, sprouts can be left. Contrary to popular opinion water sprouts will grow into normal fruiting branches, but to cut them back severely as is sometimes practiced will cause delayed fruitfulness just as the heavy pruning of young trees.

Time of Pruning and Treatment of Wounds

The old adage that advocates pruning whenever the knife is sharp can still be accepted with certain reservation. The regular annual pruning is best done during the dormant period when the trees are not in leaf. Done at that time it has the desired invigorating effect, whereas an equal amount of summer pruning may be quite devitalizing, depriving the tree of young foliage before that foliage has had an opportunity to contribute much to the root growth of the tree, However, dead or diseased wood may be removed in the summer as may also water sprouts. In fact water sprouts if rubbed off early in the summer while they are yet succulent will not be so apt to come back.

The way a pruning cut is made has a direct bearing upon the healing of the wound. A branch should be taken off flush with the limb or trunk from which it is removed so as not to leave a stub which invites decay. Large wounds which will require more than a year or two to heal may be protected from decay by a thick white lead and oil paint, gas tar, or one of the ready prepared tree paints. If the paint is applied during the summer instead of at the time of pruning, the wood will take the paint better and the caustic action of the paint will not retard the healing of the wound after callous formation has begun. Small wounds need no attention.

Appropriate tools, well sharpened, are essential to an expeditious and satisfactory job of pruning. Too many overlook this fact and needlessly lose time because of inadequate and dull tools. Different men have their own preferences as to the tools they can work with to the best advantage; probably the main thing is to have the tools good ones of their kind and have them sharp.

Questions:

Q. I notice that you say that a branch always remains where it started. What effect does that have—how does that work, with reference to the distance of your cutting?

A. That makes little difference.

Q. What advantage do you see for that two year old over the one year old, in view of your statement?

A. Because it has sent out its side branches. And if you prune them off you lose that advantage.

Q. Will some varieties stand more weight than others?

A. Yes. There is a difference in varieties with the same angles. *Wealthy* is a variety which splits very easily and *Northern Spy* often splits rather easily.

Our *McIntosh,* often with a narrow angle, will take a very much greater weight. The crotches are pretty well strengthened and it doesn't break very easily. *Grimes* would be a very good variety for that. The *Northwestern Greening* is one of the weakest.

Q. Is that same thing true of peaches?

A. It is true to some extent with peaches but not in every tree. Of course with a large tree there wouldn't be so much weight for any one part of the tree to support.

* * * *

THE PRESIDENT, MR. ENGLAR: (After the conclusion of Prof. Oskamp's paper) Mr. Bryan of Havre de Grace is going to lead us in this discussion.

MR. BRYAN: Mr. Chairman and Gentlemen: We have had a remarkably comprehensive and interesting discussion by Professor Oskamp. Of necessity that discussion was more or less academic and theoretical, but the mere fact that it was will serve as a better foundation for the practical discussion of the question by you gentlemen. I think there is nothing so stimulating to practical discussion as a little difference of opinion. Radical statements rather promote discussion and so that is going to be my policy for at least a few moments. I am questioning some of the points that Prof. Oskamp has made. He is, undoubtedly, right in what he says, because while I have personally started some 10,000 trees and pruned them in the last 20 years I am free to admit that I am not always satisfied with the results. I do however feel like questioning some of the theories advanced just as a means of stimulating active discussion. In that connection I should like to take up one of two points myself.

(Drawing a tree on the blackboard). That was given as an example of a fruit tree which could be let alone. It has been said that you can't possibly grow a tree from that foundation.

Now I have grown them that way and I'll tell you how I do it. The scaffold limbs should be a minimum of 9 inches apart and preferably 12 inches apart.

Perhaps I have drawn these angles too narrow but it doesn't make any particular difference. The fact of the matter is that as these limbs increase in diameter, the bulk of the two limbs, whichever of the two may be left, will crowd in on the third limb and we will find only a bark surface on one side covering perhaps one quarter or one third of the circumference of the tree. That covers this point, which Professor Oskamp so well explained, namely the fact that there is a definite fissure through that growth running way down. That is what I mean. (indicating). The bark surface available for that limb will be cut off at only one quarter the circumference of the tree. Now Professor Oskamp gave two possibilities for handling a tree of that sort. Now, I am going to take off one, entirely. In hundreds of trees that I have tried out it depends entirely on the growth.

Now, as to the height at which young trees should be headed, we all want low headed trees, but don't confuse that height with the height at which you will cut off nursery trees. I used to cut them off 20 inches high. Now I believe that you should have them three or four feet high. Scaffold branches should be so high that no two limbs will touch each other. The idea would be about like this (indicating on the diagram). Top branch, here; another branch left here and another branch here, equally distant apart. That is the ideal, and like other ideals it is something which we can seldom attain. For the same reason I think it is an accurate definition or distinction, because they are almost always all bunched in like that. You can't get the distance between the scaffold branches exact, but you can get it approximately correct.

Now suppose you pruned your yearling tree and you got several branches like that, and you have, theoretically gotten what you want, which is a tripod tree, but in the following year of growth this limb here hasn't grown as it ought to grow. You have a strong leader here and a fair one here and then you have to decide and you make up your mind "That isn't going to be the scaffold limb" and you prune that off and let it grow back out, until it is a strong limb. A large

leader tree is, in 9 cases out of 10, the practical tree. Your leader is maintained until you have a series of branches which will make a good tree. Then cut out the leader.

As for pruning, heavy pruning undoubtedly delays the bearing. But it also depends upon how that pruning is done, —how it is done with reference to fertility and culture.

I speak with confidence on that point because I have seen trees come into action and bear well in ¼ to ⅓ the time that an unpruned tree will do it, incredible as it may seem. It is as important to keep the tree thinned sufficiently as it is to avoid overpruning. The tree just simply must have light and if you don't supply it the tree suffers.

Just one other point and that is this question of rejuvenating the tree by means of pruning. That is a contradiction in terms. We have just had it very clearly explained to us that when we prune the tree we remove leaf surface, and in so doing we remove the digestive apparatus of the tree. We actually clean the tree up, which it may need, and by the reaction to the pruning we get an apparent new growth. Of course we can't grow good fruit on old wood, but the question is, how are you going to get that new growth which you want.

How are you going to regenerate the tree? The way to regenerate that tree is by proper culture and fertilization on a heavy scale. Granting that proper pruning must take place, it must be properly thinned out. You must have sunlight and air in it, but get that new growth by means of culture and fertilization. Don't let all of your possible fruit sprouts come into bloom. Fertilize so heavily in that instance that you will force from one half to two thirds of your potential fruit buds into vegetative growth leaving these other buds to produce nice fruit. If you do that you are going a long way toward preventing the breaking down of your tree with a very heavy crop.

THE PRESIDENT: I would be very glad to have you ask any questions you wish and let Professor Oskamp answer them.

Q. What time of year would be about the proper time to prune a tree?,

A. (By Prof. Oskamp) That becomes more of a commercial question than a theoretical one. The orchardist as a rule

has a certain time for pruning, and usually based on experience. That is to say, it is usually between the time of gathering his crop which is probably somewhere in between September and November and the spring of the year. It should, I think, be done in the winter, preferably to the summer because there is less loss of the stored carbohydrates than takes place in the summer when the tree is growing. On the other hand, making large cuts in a tree around the bark when it is frozen causes a certain amount of death back in the bark and prevents the complete closing over such as you would get when it was not frozen.

Q. (Mr. Miller) As to pruning and thinning the buds, and the value of heavy pruning, when there is a heavy crop I would like to ask what effect will it have upon that bearing?

A. I expect that Dr. Auchter can answer that better than I could, but since you have called on me, I can give you my guess on it, and that is all. I can tell you what I think about it, because I don't think anybody here has ever demonstrated it by practical field work, that might have such an effect on different varieties in regard to bearing, such as Yorks, where they are consistently thinned and pruned.

I look at that like this. We have in New York a tree which is called the *Baldwin,* and certain theories have been advanced with reference to regulating the season of production of its fruit; some suggest the practice of close pruning; others of heavy fertilizing, etc., by which we can cause annual bearing. That has all been worked out theoretically but it hasn't yet been worked out in a practical way. But I do think this that any of those factors may tend to steady things and give you somewhat nearer steady annual production. I think you yourselves have the means of control right in your hands. So far as I know or can tell the best thing for a fruit grower to do is this: "prune heavily and thin heavily." Unless you do that you are going to get too heavy crops some years and others a very small crop. That is where that idea of pruning or thinning comes in. But there are many things besides these which are very important factors in connection with the control of bearing but in my paper I didn't say much about the actual control.

Q. Thinning the fruit would help?

A. Yes. That would help you to get away from a heavy crop.

Q. (The Chairman) Mr. Carpenter, will you please tell us what experience you have had in the way of pruning, thinning and fertilizing?

A. (Mr. Carpenter) In fertilizing a field of 175 acres of York Imperials for a period of six years, we applied 5 pounds of Nitrate of Soda to every tree for two years. The fourth year that was increased to 6 pounds; the fifth year to 8 pounds; and the present year to 10 pounds. The result was that from the third year we had approximately the same production per tree which was, approximately, 10 bushel per tree, until the present year when it was increased to something over 12.

Q. Your trees have, then, for all practical purposes, made an increase each year?

A. Well, I wouldn't want to go quite that far. We have been able to do it in a couple of years and we have every reason to believe that it might work with us every year.

Q. I would like to know about the York Trees. I have heard that they will bear on younger trees and make a regular crop but on an older tree they get one overwhelming crop, say the tree is perhaps 18 or 20 years of age, they should expect the next year to be a year of rest. That is getting practically the same result but the older trees, I think, are not so responsive.

A MEMBER: That is one of the worst troubles with orchardits today, to solve the problem of getting during some years an enormous crop of unsalable apples, and then get nothing the next year.

THE PRESIDENT: I think the men who make a business of orchard and farm work are, if they have any large sized orchards, forced to depend upon hired help to do this work. A friend of mine once evolved some very simple rule of thumb instruction like this: Cut out the wood that bears the culls and cut out enough other wood to get the light through.

I would just like to say a word or so about these young ladies at the desk by the door. They are representing the

organization and they are there waiting for you and ready to receive your dollar and give you a button like this so that we will all know that you are members of our organization. I will let them tell you just what they are there for. Pay your dues now and you will enjoy the balance of the meetings better.

THE PRESIDENT, MR. ENGLAR: Dr. E. C. Auchter has a very important message to bring before the meeting on the matter of apple thinning. His address is entitled, "does fruit thinning pay?"

DOES FRUIT THINNING PAY?

By DR. E. C. AUCHTER

Head Department of Horticulture, University of Maryland

Mr. President and Members of the Horticultural Society:

The value of spraying, pruning, cultivation, and in many cases fertilization, is now clearly recognized by most progressive fruit growers. The value of fruit thinning, however, is not so clearly recognized, and this orchard practice is often omitted even in those orchards where all other operations are thoroughly performed. The fact that this is so suggests at once that its value is not so apparent and that several factors may influence the results obtained.

Factors to be Considered

In certain very favorable seasons the same number of apples per tree will average much larger than in others. Growers practicing thinning for the first time during such years might question its value. It is a fact also that in those years of general light fruit crops over the country, good prices are often received for comparatively small fruit. In such years the increased size of individual specimens, due to thinning, might not command enough increased price to pay. Even in normal years of fair crops and average prices, such factors as age of tree, vigor of tree, set of fruit, kind of soil, variety and cultural practices used, play a big part in determining whether thinning will pay.

For instance, apples such as Tompkins King and Mammoth Black Twig, which normally are good sized apples, and which normally do not set as high a percentage of blossoms as certain other varieties, show only a slight value from thinning

in the same orchard where thinning might be very profitable in the case of such varieties as Wealthy and Winesap. It is quite evident also that vigorous trees on strong soils will develop the same number of apples much better than weaker trees on lighter soils. The same variety on the same soil might need severe thinning one year, due to a heavy set, and no thinning the next year, due to a light set. These examples cited are, of course, common observations of growers and have been reported upon several times by investigators.

Market Requirements

Even a casual study of market conditions reveals the fact that a premium is paid in this country for fruit of good size, color, and quality. With the gradual increase in commercial production we can expect the buyers to be more insistent than ever that fruit be of good size, color, and quality. It appears that it will not be profitable in the future to produce other than this kind of fruit.

Interrelation of Orchard Practices

It is of course well recognized that all such operations as pruning, spraying, fertilization, cultivation, thinning, etc. influence these three essential qualities (size, color, and quality), in fruit. It is not the purpose of this article, however, to discuss any of these different practices except thinning, other than to point out that these practices are interrelated in their effects and each one should of necessity be considered in relation to the others. For instance, poor spraying, pruning, fertilization, and cultivation would greatly offset the advantages of thinning. Again the favorable results secured from good pruning and fertilization might be greatly diminished by poor spraying. It is well then to consider the interrelation of all of these factors in studying the effects of any one.

Advantages of Thinning

Practically all experimental evidence and the experiences of growers show that where trees have set a heavy crop of fruit, the removal of part of it by thinning will result in a much better product at harvest time. Fruit from the thinned

trees is generally of much better size and color, freer from blemishes and more uniform in grade. Even though the removal of from twenty to fifty per cent. of the crop might decrease the total crop of fruit per tree in some cases, still the amount of marketable fruit is generally as large or larger and is of course a much better product. Gaston* of Michigan, in a study of the more important commercial varieties of apples in that state has shown that in 1924, one-half and in 1925 one-third of the B grade apples were placed in that class because of lack of size. In fact the Baldwin variety, during 1924, had 82 per cent. of the B grade, and 65.5 per cent. of the cull grade placed there because of lack of size. There is no doubt but that systematic fruit thinning would be one of the ways of raising the percentages of the better grades of fruit under such conditions.

By removing part of the crop, especially on young trees, much breakage and permanent bending of branches will also be reduced. Although apples of much better size, color, and quality are produced by thinning in years of large crops, still contrary to popular belief, thinning cannot be relied upon to correct biennial bearing in some varieties, which normally produce a crop only every other year. Thinning, together with other orchard practices, may be of value in correcting this condition, however.

Apple Thinning

Although considerable evidence relative to the value of apple thinning has been published, it is always interesting to record and study recent findings. Apple thinning investigations were made during the past year (1926) at the Maryland Experiment Station, and also in co-operation with orchardists in various parts of the state. Briefly, some of the results are as follows:

In one orchard of twelve year old Stayman Winesaps, in which the trees were rather low to medium in vigor, and where the set was heavy, results as shown in Table I were secured.

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*Gaston, H. P. "Why a cull apple is a cull." Mich. Special bulletin 160. (1927.)

TABLE I.

INFLUENCE OF THINNING ON SIZE OF STAYMAN WINESAP

Distance Thinned in Inches	DIAMETER OF FRUIT IN INCHES								Total Yield in Bushels
	0—2¼		2¼—2½		2½—2⅞		2⅞ plus		
	Bushel	Percent.	Bushel	Percent.	Bushel	Percent.	Bushel	Percent.	
6"— 8"	.75	5.3	2.25	15.0	10.5	71.2	1.25	8.47	14.75
9"—10"	0.	0.	.12	.96	2.38	19.4	8.75	79.6	12.25
Check (Unthinned).	2.25	15.28	6.0	40.68	6.38	43.21	.12	.81	14.75

It can be seen that all thinned trees produced fruit of much better size than the checks. The trees thinned 9 to 10 inches apart had their total yields somewhat reduced. The greatest quantity of marketable fruit was produced from those trees thinned 6 to 8 inches apart. As much marketable fruit was produced on the trees thinned 9 to 10 inches as on the checks and the fact that the fruit from these trees was much larger than that from either of the other group resulted in a greater net return from these trees. On the trees thinned 9 to 10 inches apart, approximately 80 per cent. of the fruit was over 2⅞ inches in diameter compared to 8.5 per cent. in the 6 to 8 inch group and less than 1 per cent. in the checks.

The thinned fruit was also noticeably better in color, more uniform in shape, and freer from all blemishes.

Similar results were also secured in thinning experiments with 18 year old Stayman trees of good vigor and growing on good soil. In this case there was very little difference in results between the trees thinned 6 to 7 inches apart, and those thinned 9 to 10 inches. Both were much better than the check and the grower was enthusiastic over the advantages of thinning.

Results of thinning experiments on 16 year old, vigorous Stark trees, bearing a heavy crop were as follows: Trees with the fruits thinned 6 to 8 inches apart had 90 per cent. of the fruit from 2½ to 3 inches in diameter, 5.75 per cent. from 2¼ to 2½ inches in diameter, and 2.2 per cent. below 2¼ inches. The fruit from the unthinned trees graded as follows:

66.6 per cent. was in the 2½ to 3 inch grade, 22.3 per cent. in the 2¼ to 2½ grade, and 11.1 per cent. was below 2¼ inches. Approximately 13.5 bushels of fruits were produced per tree in each case. Thus thinning was profitable in this case also, but the advantages were not as striking as in the 12 year old Stayman Winesap shown in Table I. Mason* has also recently shown decided benefits and net increased profits from thinning the old Winesap in New Jersey. In his experiments the fruit was thinned from 6 to 8 inches apart. The value of fruit thinning has also been shown in several bulletins (†) from different states during the past few years.

It is possible that heavy thinning of apples might not be as desirable, where the fruit is to be exported. In some foreign markets medium sized fruit is preferred to the larger grades. However it would still pay to do some thinning in order to produce a more uniform product and especially to produce better color.

Peach Thinning

Most peach growers realize the value and necessity of thinning early peaches at least. In most peach sections, thinning is performed as religiously as spraying or pruning. Generally speaking varieties like Hale and Elberta, which normally are good sized peaches, do not need as heavy thinning as earlier varieties like Carman and Greensboro.

Such factors as age of tree, size of crop, severity of pruning, soil moisture. especially as influenced by organic matter, amount of rainfall, and fertilization, will of course influence the amount of thinning that is necessary. It has been found profitable in most cases to thin the earlier varieties somewhat heavier than the later ones. Thus thinning the fruit from 6 to 8 inches apart in the case of the early varieties, removing 50 to 60 per cent. of the fruit and from 3 to 4 inches apart

*Mason, A. F. Some factors which influence size and color of apples. Pa. State Hort. Soc. (1926.)

†Herrick, R. S. Thinning the Winesap, Colorado Agricultural Exp. Sta. Bul. 170. (1910.)
Batchelor, L. D. Thinning apples, by Utah Exp. Sta. Circ. 12. (1913.)
Beach, S. A. Thinning apples, N. Y. Agr. Exp. Sta. Bul. 239. (1903.)
Brown, G. G. Apple thinning in Hood River Valley. Ore. Agr. Exp. Sta. Circ. 76. (1926.)
Tufts, W. P. Thinning deciduous fruits, Cal. Agr. Exp. Sta. Bul. 258. (1923.)
Auchter, E. C. Five year's investigations in apple thinning, W. Va. Exp. Sta. Bul. 162. (1917.)

in the case of the later varieties, thus removing 30 to 40 per cent., seems desirable.

In many cases, with young, vigorous, Elberta trees, growing on strong soils, it has not been found profitable to do more than thin out the thick clusters. With such trees, the individual fruits size up well and the total yield is simply reduced by heavier thinning. Older Elberta trees of less vigor respond well, however, if the fruits are thinned from 3 to 4 inches apart.

Maryland Peach Thinning Experiments

Peach thinning experiments in Maryland in 1923 and 1926 show clearly that Greensboro, (an early variety), responded better to heavier thinning than did Elberta. The influence of weather conditions was also clearly shown. In 1923, (a very dry season), unthinned Greensboro had only 2 per cent. of their crop above 2 inches in transverse diameter, however, in 1926 (a more nearly normal season), these same unthinned trees had 58.2 per cent. of their crop above 2 inches. These trees were 15 years old and of moderate vigor in 1926.

In both years better results were secured by thinning Greensboro 6 to 8 inches apart as compared to 3 to 4 inches. With Elberta, however, the best results were secured from thinning the fruits 3 to 4 inches apart.

With Elberta, the thinned trees in 1923 had 52 per cent. of the fruit above 2 inches in diameter as compared to 32.5 per cent for the check. In 1926, 84 per cent. of the fruit from the thinned trees was above 2 inches as compared to 59 per cent. from the checks. Unthinned Greensboro in 1923 had practically no marketable value. Approximately 3 bushels per tree were produced in all cases.

Plum Thinning

The value of thinning in increasing the size of fruit is probably shown as clearly with plums as with other fruit. Fruit for fresh shipment, and especially that of the Japanese plums, such as Red June, Abundance, and Burbank, is generally greatly benefited by thinning. The unusually heavy setting of fruit on such varieties is a common sight. Unless such fruit is thinned, the individual fruits are small, and the trees literally break themselves down with crops.

Maryland Plum Thinning Experiments

Thinning experiments were conducted with the Red June, Abundance, and Burbank varieties at the Maryland Experiment Station during the past year, (1926). Some trees had the fruits thinned to 3 inches apart, some from 4 to 5 inches apart, and others were left unthinned. The thinning was done just after the June drop. It was surprising to note how the individual fruits sized up on the thinned trees. Enough added increase in size was not secured in the 4 to 5 inch thinning to pay when compared to the 3 inch distance. It is possible that thinning the fruits to 3 inches apart might be a little severe unless a premium could be secured for the larger sized fruit, since the total yields were reduced in some cases. Perhaps thinning to two inches apart would be the most satisfactory, although this distance was not used in our experiments. Results follow:

TABLE II.

RESULTS OF THINNING FOUR YEAR OLD BURBANK PLUMS

(Given in Percentage of Crop)

Distance Thinned in Inches	Distance of Fruit in Inches				Total Quarts Packed Per Tree
	1.25″	1.5″	1.66″	1.75″	
3″	.79%	0.%	61.0 %	38.2 %	31.5
4″—3″	4.0 %	0.%	68.0 %	28.0 %	20.
Check	100.0%	0.%	0. %	0. %	35.2

TABLE III.

RESULTS OF THINNING FOUR YEAR OLD ABUNDANCE PLUMS

(Given in Percentage of Crop)

Distance Thinned in Inches	Diameter of Fruit in Inches		
	1.15″	1.34″	1.51″
3″	0. %	46.65%	53.35%
4″—5″	0. %	46.66%	53.33%
Check	77.4 %	0. %	22.6 %

TABLE IV

RESULTS OF THINNING FOUR YEAR OLD RED JUNE PLUMS

(Given in Percentage of Crop)

Distance Thinned In Inches	Diamter of Fruit in Inches	
	1.2"	1.6"
3"	16.7%	83.3%
4"—5"	19.1%	80.9%
Check	68. %	32. %

The great value of thinning Burbank plums can readily be seen by referring to Table II. Although the total yield was slightly less per tree, the increased size of the fruit on the thinned trees resulted in a much better price and greater net returns. Nearly as good results were secured with the Abundance and very good results were also secured with Red June.

Time to Thin

In practically all cases the sooner that thinning can be done after the June drop, the better will be the results. However later thinning will also be benficial and some increase in size and color will result if the thinning is unavoidably delayed until a few weeks before picking. Early ripening varieties of peaches should of course be thinned as soon as possible after the June drop.

Methods and Distances

In thinning apples it should be the aim to remove all injured, diseased or insect stung fruit, and the small green and knotty apples on the lower inside limbs which seldom ever become marketable. Clusters should be reduced to one apple each and the remaining apples on the limb should be thinned to a certain distance, depending on different conditions such as age of tree, set of fruit, vigor of tree, etc. In most of our experiments six to seven inches apart seemed most satisfactory.

Early varieties of peaches should be thinned in most years to at least six inches apart. Three to four inches apart is generally satisfactory for late varieties. Young, vigorous Elbertas often require very little thinning.

Thinning by hand seems to be the fastest and cheapest method in most cases.

Eight to ten year old apple trees producing a barrel per tree can be thinned by one man in approximately twenty minutes. Low headed, middle aged trees, bearing about five barrels per tree can ordinarily be thinned by one man in about one and one-half hours.

Four and five year old peach trees, producing about three bushels per tree will require about thirty minutes per man.

The Cost of Thinning Offset by Other Advantages

The cost of thinning per tree can be determined by multiplying the above figures by the prevailing wage per hour. However our investigations show that only a small part, if any, of the cost of thinning should be charged against the thinned trees. In the first place the fruit thinned off would have to be removed at picking time anyway, and the cost of removal would not be much different in either case. In the second place it takes much longer and costs more in sorting to pick out the larger amount of culls on the unthinned trees, and these culls are then not salable.

Q. How about using shears?

A. I would not use shears at all. On a middle sized or small acreage it might be all right, but when you have a large acreage of maybe 100 to 500 acres of fruit trees, where are you going to get the labor to do those things? Where are you going to get someone to go over these 20 year old trees with shears?

THE PRESIDENT, MR. ENGLAR: Our Secretary Mr. G. Rust Canby will lead the discussion on this paper.

MR. CANBY: *Mr. President and Gentlemen*: I don't know whether I am quite eligible to talk on this subject because I come without figures and without experimental data, but I do have a small orchard that receives lots of my time and attention and I have learned a lot from this orchard of only some 60-odd acres. One of the conditions to be considered in this discussion probably would be the fact that I have never pruned very heavily.

However, I am always trying to improve and I did make observations this year and I might say that I am "sold" on the proposition of thinning. My orchard is just about the shape of this board—practically square. It is pretty gener-

ally worked in this direction and the field contains a good many varieties.

We also have them graded down according to size, etc.

Well, it so happened this year that we didn't get around to one block of them and they were not thinned. So I had two blocks of practically the same size and same number of trees one of which had been thinned and the other had not been thinned.

I will say right here that this, so far as my part of it is concerned, is based largely upon accident. I have nothing in the way of figures but I do take credit for foreseeing trouble with the very heavy set that I had, if I didn't do something in the way of thinning.

I really believe though that I didn't know how to thin. I spent an average of about 30 minutes per man, per tree in going over an orchard that covered 65 acres, perhaps, because while the orchard is small it took just as much attention as that which is required by you men who have hundreds and even thousands of acres of trees. That was scattered over the entire season. Of course you large growers have a bigger force of men and you could take your entire force out and cover the entire acreage in probably a few days. But when the force is limited, as in this particular orchard of mine, to three men, the job of thinning was scattered over a right long period.

In that connection I would say that I have found my experiences different, somewhat, from those of others with whom I have discussed the matter. That is, I have gotten very nearly the same results from the later thinning as I did from the earlier. I realize the fact that it might have its effect on the next crop, but I think I got very good results from the late thinnings.

One of the important mistakes I made was when I speak of thinning on an average of 30 minutes to the tree. I think I took off just about half enough apples in thinning most of these trees. It was hard to estimate just how much time would be necessary and I suppose it wasn't wise to have those men go over them spending just a set time on each tree. But even with that it made it a pretty expensive proposition.

But I am absolutely convinced from the crop I picked from

that group of trees over there in the right hand corner that had I not thinned that orchard at all I would have had practically no apples to market this year.

However, in fairness to all the elements involved, I will have to say that had I not fertilized, as was the case for this little block here (indicating) I would have had the same experience. Where I both fertilized and thinned I had apples of good size, and apples that sold well and made a profit. That is simply my experience, without having made any records, as I say.

THE PRESIDENT: We want to get just as many questions as we can in this two minutes. We want to use all the time we can.

Q. What kind of material do you use in fertilizing?

A. Nitrate of Soda and I try to keep the soil sweet enough for legumes.

Q. About how much do you use?

A. 5 and 10 lbs. We find that we get pretty good crops.

THE PRESIDENT, MR. ENGLAR:

I want all of you to have an opportunity to ask any questions you desire but if you have no more questions it is now 12:30 by my watch and we are going to stop. Therefore we will have to close this discussion. I want to mention that if any of you go out and find your cars tagged don't worry about it because we have made some arangements with the Police Department and if you will come and see either Dr. Auchter or myself, if you get into any difficulty, we will help you out, during the noon hour. I expect to get some stickers that you can put on your cars but if any of you have any trouble in the meantime, let us know.

Now it is necessary for one of our principal speakers this evening to leave here a little earlier in order to get to the Massachusetts Agricultural Society meeting. That is Mr. Gorby, of Chicago, Secretary of "Apples for Health," Inc., and in order to get to Massachusetts he has to take a train leaving Baltimore about 8:30.

Dr. Pearson was to address us first, but Mr. Gorby advises us that he must leave here on the 8:20 or 8:30 train, so we have called Dr. Pearson and he has kindly consented to come

onto the programme second. Therefore it will be necessary for us to start our evening meeting a little bit ahead of time, as Mr. Gorby says that that particular train is the only one he can make that gets him into Massachusetts on time. Therefore I hope that you will plan to be here tonight by 7:30 for the start of the meeting. The time of our afternoon meeting has been printed on our programme as 1:30 and we will start that meeting on time and keep on this scheduled time right through to four o'clock.

Now we have several committees to appoint, and I just want to appoint them before adjournment.

Committee on Nominations—Mr. Cohill, Chairman, Mr. Bryan, Mr. Towson, Mr. McCain, Mr. Carpenter.

Auditing Committee—Mr. A. F. Nofsinger, Mr. M. D. Moore.

Committee on Resolutions—Mr. Allen, Chairman, Mr. Canby, Mr. Whiteford.

With your permission we are going to also appoint a committee on membership. If there is no objection we will appoint them.

Committee on Membership—Mr. Vierheller, Chairman, Mr. Burdette, Mr. Whiteford, Mr. Hanson, Mr. Cohill, Mr. Newcomer, Mr. McCain, Mr. Englar, Mr. Allen, Mr. Harris, Mr. Walker, Mr. Nofsinger, Mr. Lloyd Balderston, Mr. Paul Hawkins.

Now we are going to adjourn immediately, but we are asking you to please be back promptly.

Thereupon at 12:35 the convention adjourned until 1:30 P. M.

SECOND SESSION

Tuesday Afternoon, January 4th, 1927

THE PRESIDENT, J. WALTER ENGLAR: Now we have quite a full program this afternoon, and so, without further preliminaries I am going to call on our friend Dr. Cory, the first speaker this afternoon. His subject is: "The Oriental Fruit Moth Injury to Apples and Sprays for Aphis Control for 1927."

THE ORIENTAL FRUIT MOTH INJURY TO APPLES AND SPRAYS FOR APHIS CONTROL FOR 1927

BY ERNEST N. CORY, State Entomologist, College Park, Maryland

While the oriental fruit moth has been reported as a pest of apples, it has never been considered a serious factor in apple production up to this time. If the infestation of apples that was present this year continues in its same degree of intensity in subsequent years, or if the pest increases, it will present a serious aspect, not only from the control standpoint but from the grading standpoint.

Coupled with the question of control is the question of arsenical residues, about which I wish to say a word later. Under our present conditions it is impracticable to apply arsenate sprays to fruit, even if we had the assurance that their application would prevent injury by the oriental fruit moth.

Examination of the orchard at College Park about the first of October showed a peculiar type of injury at the stem end in a large percent of the cull fruit examined. Frequently this injury was a small split or abraded place near the base of the stem. Sometimes the injury was almost completely hidden by the stem, being in contact along one side. In all cases, however, careful examination showed minute particles of frass near the base of the stem.

Further examination disclosed that many fruits had minute particles of frass almost hidden by the calyx lobes. On cutting these injured fruits, larvae in all stages but principally in the early instars, were found. The tunnels were of two types. Usually the larvae burrowed through the fruit towards the seed cavity, sometimes directly; at other times winding channels were cut and often the entire seed capsule was destroyed, together with some of the seeds, as well. The second type followed the characteristic tunnelling of the lesser apple worm just beneath the skin. These areas ran from the size of a dime to mines extending from the stem to near the calyx and involved nearly a quarter of the surface. When more than one larva was present, the apple broke down completely through a combination of soft rots and the feeding by the larvae.

In leaving the fruit the worm usually cuts a sharply defined circular exit hole, often near the stem or calyx end and constructs its hibernaculum in the basin between adjacent fruits or between the slats of the basket or in the pad.

This injury at College led to examination of cull apples from every part of the state except the extreme western counties. The apples showing evidence of worms were cut, the larvae collected and determined. The following table shows the relative proportion of codling moth and oriental fruit moth larvae in cull fruits.

TABLE I.

WORM COUNTS FROM CULL APPLES

No. of orchards	Total Fruits	Visibly wormy	No. worms found	C. pomonella	L. molesta
		284		32	72
12	2210	12.8%	104	31%	69%

Examination of fruit from an experiment conducted at College, in a privately owned orchard, that had not been sprayed for about five years, showed the following ratio between codling moth and oriental fruit moth.

TABLE II.

WORM COUNTS FROM RECORD TREES IN EXPERIMENTAL PLOTS

Total Fruits	C. pomonella	L. molesta
5939	60	325
Percent of total	1	5
Ratio	19	81

Another interesting observation on the cull fruit was the presence of eggs and egg shells on a large per cent. of the fruit. Many of the eggs showed evidence of having been parasitized, but our observation on the point was too late to yield the parasite itself. Most of the eggs were on either the edge of the stem or calyx basins.

The impossibility of grading out all infested apples in the packing house is manifest, and the question arises as to the amount of damage that may be done by undetected larvae in apples that go into storage or that are shipped to the market

early. Undoubtedly the larvae that are in late apples will emerge after having attained full growth and pupate in the baskets or pads. The fact that the apples have been infested will, in all probability, go unobserved until they reach the ultimate consumer except in the case of those larvae that have mined under the skin. In the latter case the blotch mines are very conspicuous and would reduce the market value of the fruit considerably.

As I suggested, the control of this pest is wrapped up with the question of arsenical residue on the fruit. Under the spraying schedule that was advocated this year the examination of fruit by the State Foods and Drugs Commissioner's office, in coöperation with the State Horticultural Department, showed that at the most only traces of arsenic were present on the late fruit. Should the use of arsenate of lead prove to be any advantage in controlling the oriental fruit moth, we would be faced with a choice of either applying the spray, which would necessitate removal of the arsenic at picking time, or accepting the injury by this pest as one of the hazzards of the industry. The total injury by this pest has not amounted to serious proportions this year, but the influence of the presence of the pest upon trade relations with the consuming states must be considered. Fortunately for us, the oriental peach moth is pretty well distributed east of the Mississippi, but even though it is present it is not widely and generally distributed over all of the states and just what action other states may take to protect their apple growing industry is problematical.

The second part of the title of this address is somewhat misleading, because so far as I know there are no new control measures that have been tested sufficiently to warrant their use in place of nicotine. At the recent meeting of the Economic Entomologists there was a general unanimity of opinion that nicotine is still the one material which will give the most consistent results. Oil emulsions have been reported upon both favorably and unfavorably, but the whole situation with regard to oil emulsions is so involved that we are unable to make any recommendation that differs from our previous recommendation. The tendency at present seems to agree toward the use of highly defined oils as the basis for emulsions.

So far as the writer is aware only one company has manufactured the oil from which the unsaturated hydro-carbons have been eliminated. The report of the oil committee to the Association of Economic Entomologists shows that variable results have been obtained even under the best experimental conditions.

Until further work has been done upon emulsions of this character it would seem unwise to attempt their use except in an experimental way.

A new method of preparing a cold stirred emulsion has been developed by Messrs. Richardson and Griffin, of the United States Department of Agriculture. The formula is as follows:

Lubricating oil.....2 gallons
Potassium fish oil soap.....1 quart
Water .....3 quarts

Pour the soap into a tub or pail and stir in the water. Add the oil gradually. The first addition should be not more than one-half the volume of the soap. Stir vigorously and thoroughly, then add the rest of the oil, stirring after each addition until all the oil has disappeared into the paste. This emulsion may be stored in tight containers or carried directly to the field to be diluted for spraying. Before placing the paste in the spray tank it is necessary to dilute it with a little water. This paste is about 67% oil by volume and any strength required can be prepared from this stock emulsion.

Derrisol and Cocotine have not proved to be any more efficient than nicotine in the tests so far reported, but further work with both of these may get better results.

We have been unable to make a survey of conditions recently, but early in December the fall migrants of the rosy aphis were abundant in all orchards visited. Apparently it will be necessary to include nicotine in the delayed dormant spray, and the spray program which we have available for distribution in its preliminary mimeographed form includes nicotine in the delayed dorman spray.

The results of our three year dusting versus spraying work on the Eastern Shore show a slight reduction in the amount of aphis for both the dusting and spraying. However, aphis

conditions were not particularly bad in any of the three years in any orchards in which the experiments were conducted. It might be of interest to mention the summary of the results for the three years.

1924-1925-1926

	Total	Codling Moth	Curculio	Aphis	Scab	Black Rot	Clean
Spray	8073	1.2	6.8	5.3	3.1	2.8	59.8
Dust	8446	.9	6.8	6.4	18.6	10.8	32.7
Check	4823	7.5	24.5	10.2	44.2	5.9	8.2

Q. MR. MILLER: What is the difference in the cost between lime sulphur and this oil?

A. PROFESSOR CORY: Well, from the standpoint from which I have been telling you about, there is probably very little difference. These are all based on Richardson's studies, and he hasn't been able to find any large difference between the cost of the home-made product and the duplicate product when it is obtained in manufactured form. Of course the lime sulphur is more expensive; oil emulsion is much cheaper than the sulphur, but if you attempt to make it at home you will find before you get through that the cost is about the same.

Some folks figure that lime sulphur is quite cheap on account of the practice of returning the barrel after removing it from the barrel.

A MEMBER: Lime sulphur figuring on the basis of making it ourselves would probably cost about .08¢ a gallon, and then when we figure our oil emulsion on the basis of .21¢ using three gallons to the tree, this of course makes the lime sulphur cheaper than the emulsion.

Q. How did it work on the aphis?

A. (BY PROFESSOR CORY): Very well. It was also much easier, naturally on the machinery, and while I will say that we couldn't find any aphis eggs earlier in the season, the aphis did show up, later on. We had an average of 97 per cent. killed insects.

THE PRESIDENT: I will now call on Dr. Martin to present his paper.

ARSENICAL INJURY OF THE PEACH

BY DR. W. H. MARTIN, New Jersey Experiment Station

As fruit growers, you are acquainted with the fact that the peach is very susceptible to injury by toxic sprays. You know, for example, that Bordeaux mixture and concentrated lime sulphur cannot be used as a summer spray on peaches on account of the serious injury which they cause. You know also that in self-boiled lime sulphur, we have a spray which, when used alone or in combination with the proper amount of lead arsenate, only rarely causes injury. In recent years, however, there has been a demand for simpler spray mixtures and as a result certain new fungicides such as Atomic sulfur, New Jersey Dry Mix and Sulfur Lime Dust have come into rather general use. These materials alone will not result in any injury to the peach but when combined with arsenate of lead in certain proportions they have caused very serious burning of the leaves and wood. In the past few years numerous orchards in New Jersey have been observed where the trees were completely defoliated. In still others the leaf injury was not severe but there was heavy wood cankering. Similar reports have come from several other states, indicating that the injury has by no means been restricted to New Jersey.

We have doubtless always had more or less spray injury in New Jersey but in 1922 our attention was called to a severe case in the vicinity of Hammonton. It was found on examination that a number of orchards were practically defoliated and that both the new and one year wood were severely cankered. The extent of the injury was so great and there was so much confusion concerning its nature that work was started by the Departments of Plant Pathology, Pomology and Entomology of the New Jersey Experiment Station to determine the real cause in hopes that its recurrence might be prevented. In 1923 the injury was not as severe as in 1922 but was found to some extent in all parts of South Jersey. In 1924 it was again quite common and severe, some orchards losing every leaf and having every twig cankered. In 1924 and 1925 the trouble was not severe except in individual cases, where severe cankering was again experienced. An examination of a

large number of orchards in the past four years showed that the injury occurred only in orchards sprayed with arsenate of lead in combination with atomic sulfur, dry mix or sulfur lime dust. On the other hand, no injury was observed in orchards sprayed with self-boiled lime sulfur and lead or with any of the three above mentioned fungicides in combination with the correct proportions of arsenate of lead. The examinations showed also that the injury to the peach occurred in several forms. In some orchards it was most prevalent on the leaves, in others the leaves showed but little injury while the twigs were severely cankered. Furthermore, the appearance and location of the twig cankers varied greatly with the age and condition of the twigs and with the severity of the injury.

Before entering into a discussion of the experimental spray tests it may be well to give a detailed description of the various types of injury resulting from arsenical burning on the peach. The injury occurs mainly on the leaves, young shoots and the one-year-old wood, and occasionally on the fruit. On the leaves it appears as brown, circular, necrotic areas usually 1/8 to 1/4 inch in diameter, or a narrow strip of dead tissue along the leaf margin. These dead areas frequently break away from the living portion of the leaf, causing a ragged appearance, or "shot hole" somewhat similar to that caused by the bacterial leaf-spot organism. Severely affected leaves usually fall within a week after the injury becomes visible, although a few may remain on the tree all summer. There may also be considerable premature defoliation of green or yellow leaves which show no apparent injury. In such cases the leaf drop is not infrequently associated with a cankering of the nodes of the new shoots. The older leaves are more subject to injury than the younger ones, the latter frequently remaining unaffected.

On the new growth the injury appears mainly at the two or three oldest nodes and at the juncture between the new and old wood, rarely along the older internodes. The nodal or bud cankers appear as very conspicuous, well-defined, brown, dead areas 1/8 to 3/8 inch long and generally about half encircling the twig. They always occur on the bud side of the node, either immediately below or completely surrounding

the bud, which is usually killed. The tissues immediately surrounding these cankers are usually healthy but may show a conspicuous reddening of the bark. The cankers at the base of the new wood are brown, necrotic bands, usually 1/8 to 1/4 inch long, completely surrounding the twigs. Such girdling cankers often weaken the shoots, causing the newly developed leaves to become pale and rolled inward. In severe cases some of the shoots may die or break off at the girdled region, giving the tree a very ragged appearance. Cankers may also occur on the internodes, but these are rare and seem to be associated with slight abrasions. These internodal cankers are variable in size and shape and seldom have a definite outline.

On one year old twigs, with brown, corky bark, the first sign of injury appears as slightly darkened blotches, mainly along the upper or more exposed surface. If the first layer of the bark is removed at this stage, the cankered areas show a reddening of the tissue immediately beneath the corky bark and a water-soaked condition of the deeper layers. The later development of the canker depends on the tissues affected. If the burning affects only the cortex, the twigs continue to enlarge; and the injured cortex cracks and partly sloughs off, giving a very shaggy appearance. If the cambium is killed, the cankered areas become sunken, due to the growth of adjacent tissues. These areas finally crack, and in wet weather exude large amounts of gum. In case of severe burning, many twigs have spaces 6 in. to 1 ft. long where the cambium has been destroyed on the more exposed side. Occasionally a canker completely girdles a twig, causing a slow dying; but, in most cases, sufficient uninjured cambium remains to keep the twig alive and bring about a slow recovery. The bark, however, remains very rough for some time, and old cases of injury can often be recognized by these shaggy-barked limbs. This healing process usually brings about a complete recovery along the main part of the limbs, but where the cankers occur in crotches the injury is often permanent. Cankers at such points seem to be unable to heal properly and, as a result, the injured crotches remain very weak and often break from wind strains or from heavy crops.

On small green-barked twigs, one year old, the injury does not appear as cracking or gumming cankers as in the case of

larger corky-barked twigs. Here it takes the form of dark blotches, usually from ¼ to ½ inch long and half encircling the twigs. They are generally located at the nodes, but in severe cases the greater part of the twig may be affected. The nodal cankers have a rather definite outline and stand out very conspicuously against the green background. On small, weak, one year old twigs, such as appear so abundantly towards the center of poorly pruned trees, this type of injury becomes so severe that the twigs are killed outright, giving the general appearance of a severe case of brown-rot twig blight.

The young fruit seems to be more resistant to spray injury than the leaves and twigs. Orchards have been observed which were from 50 to 75 per cent. defoliated, and where all of the one year old twigs were severely cankered as a result of arsenical injury, and yet the fruit which remained on the trees showed no sign of burning. The fruit is always reduced in size, however; and, where defoliation is severe, the quality is greatly reduced.

Spray Tests in 1922

In the test this year only one spray application was made on July 26. One tree was sprayed with each of the various mixtures which were made up of sulfur, lime, lead and atomic sulfur alone and in various combinations. The first signs of injury were observed on August 10, 15 days after spraying and by August 18 the burning had reached its maximum. At this time no injury was observed on the unsprayed trees, or on those sprayed with atomic sulfur, self-boiled lime sulfur or dry mix, all without lead. On the other hand, the trees sprayed with arsenate of lead alone and with lead and lime were severely burned. While 1½ pounds of arsenate of lead with 5 pounds of atomic sulfur in 50 gallons of water, caused considerable injury, the addition of 5 pounds of lime almost entirely prevented the injury but where the lead content was increased to 2½ pounds injury again occurred. It is apparent from these tests that arsenate of lead used alone or with lime or in excess in sulfur-lime-lead mixtures, caused considerable leaf and twig injury from a single application.

Spray Tests in 1923

The tests conducted in 1923 resulted in very little injury, due, no doubt, to the very warm, dry season. The only trees showing any injury were those sprayed with arsenate of lead, alone, or with sulfur and arsenate of lead, or arsenate of lead, sulfur and a small amount of lime. It is interesting to note that the use of 1½ pounds of arsenate of lead in 50 gallons of water caused only slight wood cankering and defoliation whereas in 1922, when there was much more moisture, this same amount caused very heavy wood cankering and defoliation.

Spray Tests in 1924

Extensive tests were conducted in this year on three year old trees. The test rows were divided into blocks of four trees each, three of which were sprayed and the fourth left as a check. Three spray applications were made on June 7, June 23, and July 11, the first being applied a few days after the shucks had fallen. The maximum injury had occurred by about July 22. On that date careful observations were made to determine the condition of the various plots.

As in the two previous years the use of 1½ pounds arsenate of lead to 50 gallons of water caused more severe injury than any other spray used. Where 4 pounds of hydrated lime were added to the 1½ pounds arsenate of lead the burning was reduced but was practically the same as with arsenate of lead alone. Varying the amount of sulfur in the mixtures containing sulfur, lime and arsenate of lead had little influence on the toxicity of the spray but where the amount of lime was varied the degree of injury decreased as the amount of lime was increased. Where 2 pounds of hydrated lime were used to 8 pounds of sulfur and 1½ pounds of arsenate of lead, the twig cankering and gummosis were very conspicuous; while where the lime was increased to 6 pounds there was no gummosis and only a trace of cankering.

It is also of interest to compare plots sprayed with dry-mix containing different amounts of arsenate of lead. Where the spray mixture contained 8 pounds sulfur, 4 pounds lime and 1½ pounds arsenate of lead, a moderate amount of injury occurred but it was by no means conspicuous. Where the

arsenate of lead was increased to 2½ pounds injury was very severe. The standard self-boiled lime sulfur with 1½ pounds or arsenate of lead which was included in the test as a comparison check, caused no injury either to leaves or twigs.

Spray Tests in 1925

In this year tests were conducted by Dr. C. M. Haenseler of the Department of Plant Pathology. Three spray applications were made on May 18, June 1, and June 17. The first indication of spray injury was observed on June 8, seven days after the second spray application, when a slight burning of the leaves was observed. No further development took place until about June 26, nine days after the third application, when cankering became apparent at the oldest nodes of the new growth. The injury continued to develop until August 4 when it had apparently reached its maximum.

In this as in the previous tests arsenate of lead alone resulted in very severe cankering. Where mixtures were applied with the sulfur and lime content constant, but with increased amounts of arsenate of lead the injury increased with the increased lead content. Increasing the lime content in dry mix resulted in general in a decrease in leaf injury. On four blocks where 8 pounds of sulfur and 1½ pounds of lead arsenate were used with 0, 2, 4 and 6 pounds of lime, the leaf injury was 43, 23, 19 and 29 per cent. respectively. In the case of self-boiled lime sulfur increasing the lime content from 4 to 8 pounds per 50 gallons reduced the leaf injury from 19 to 11 per cent.

Increasing the amount of sulfur in the mixture also decreased the amount of leaf injury in most cases. Where 4 pounds of lime and 1½ pounds of arsenate of lead were used with 0, 4, 8 and 10 pounds of sulfur the leaf injury was 30, 30, 19 and 17 per cent. respectively.

In the 1924 tests it was found that the earliest spray application was responsible for the most severe injury. From this it would appear that the maturity of the twigs was a factor of importance in determining the amount of injury. Entirely different results were secured in 1925, however, for the shuck fall spray made May 18, caused only a trace of injury while

the second and third applications, particularly the latter, caused severe injury.

These differences in time of appearance of the injury are probably explained by the fact that the weather conditions of 1924 and 1925 were practically reversed. In the former year the early part of the season was wet and the latter part very dry while in 1925 the early spray was applied during a very dry and the latter sprays during a wet period. It is clear from these and other observations that most severe arsenical injury may be expected to follow from applications of sprays made during moist, humid conditions.

Summary

The results of the spray tests conducted over a four year period demonstrated conclusively that the injury to the leaves and twigs of the peach as observed in numerous orchards and as previously described is due to arsenate of lead and not to atomic sulfur, winter injury, brown rot or other causes.

These tests showed also that the addition of lime to arsenate of lead does not reduce the danger from burning and cases have been noted, where under certain conditions the combination of arsenate and lime has resulted in more injury than where the lead was used alone.

A combination of sulfur and lead will result in approximately as much injury as arsenate of lead alone. This is true whether the mixture is applied as a spray or a dust. In the case of the latter it has been found in New Jersey that a mixture of sulfur, lead arsenate and hydrated lime applied as a dust is not likely to cause burning provided the lime content is not less than 20 per cent. We are now advising our fruit growers to use a 75-5-20 dust in order to still further reduce the danger from burning.

In the preparation of dry mix for spraying peaches it is advisable that hydrated lime containing not less than 90 per cent. calcium oxide be used. Hydrated lime which has been exposed to the air for some time and which as a consequence has changed to calcium carbonate should not be used in the preparation of dry mix since this tends to increase the water soluble arsenic content of the spray mixture and will result in injury. These tests showed also that a dry mix containing 8

pounds of sulfur, 4 pounds of lime and 1½ pounds of arsenate of lead was unsafe for peaches. Increasing the lime content decreased the danger from burning but even with 6 pounds of hydrated lime the injury was not entirely prevented. These studies indicated that 1 pound of arsenate of lead to 50 gallons of dry mix was the maximum amount of lead that was safe to use on peaches, and in order to still reduce the danger from burning, the New Jersey growers are being advised to add an additional 4 pounds of lime giving an 8-8-1 dry mix. In this connection it should be noted that a pound and half of arsenate of lead was used with self-boiled lime-sulfur without injury. Where the lime content was decreased to four pounds, however, considerable burning was experienced, the injury being nearly as severe as from the use of an 8-4-1½ dry mix.

In view of the serious injury which may result to the peach from the use of improperly balanced spray mixtures the fruit grower is urged to be very careful in the preparation of his sprays. This is especially true if dry mix is used; don't guess at the weights of the lime and arsenate of lead used. See that they are properly weighed before going into the spray tank. This simple precaution together with a knowledge of the amount of arsenate of lead safe to use in combination with sulfur and lime should eliminate any danger of injury following the use of the spray mixture.

Q. You aren't using arsenate of lead alone?

A. No, we get the standard dry mixed.

Q. Dr. Martin, if you were dusting peaches which had reached the point where you could tell about this condition developing, would you use the 80% sulphur and 20% lime, or straight sulphur?

A. Well, most of our men use the 80-20.

Q. I was trying to link that up with your statement about the injury not being caused by sulphur and arsenate. That is, I take it, probably true on apples.

A. I imagine it would be.

You see, the reason why we had to use the hydrated lime you men know that the first changes take place on the leaf and if you use the hydrated lime you don't get the burning from the fact that you have water soluble arsenic, but if you

use calcium carbonate and arsenious acid there is nothing there to take up the free arsenic, while there is, if you use hydrated lime. On the other hand, if you use hydrated lime with a high content of calcium oxide, you free the calcium arsenate which is very insoluble.

MR. BRYAN: The injury that you speak of is common. It is quite possible unless you are very careful, indeed, to have that burning of the leaves. We have seen it at times.

DR. MARTIN: My experience has been that the first indication of burning is that the leaves start to turn yellow.

Q. We have always used 5 pounds of lime and we have always found that one variety was nearly burnt to death. That is the Elbertas. We find that there is a difference in varieties.

A. We have found that same thing is true of our experiments. That accords with our findings.

Q. Is this atomic sulphur which you mention the same atomic sulphur made by the old Thompson Company?

A. Yes, we can use that and get no burning with it at all.

Q. In your paper you spoke about the flavor of the fruit in orchards where one of the mixtures was used. About the matter of quality, I mean, where the peaches are apparently so nice looking. Are they better or anything?

A. The flavor is way off. You get just a little burning with that mixture. You get lots of color, of course, but the flavor is very flat.

THE PRESIDENT: Now I will call on Mr. W. Lee Allen, of Salisbury, Md., to open this discussion. Mr. Allen.

MR. ALLEN: Mr. President, I think that we have already had a good discussion and it has been very ably led by Dr. Martin. I think that the reason the people who made up this programme chose me to discuss this matter is that they happened to know that I was very good at getting arsenical injury. I think, perhaps, that I am as successful as anybody in the state, at that. I probably hold the world's record for it. (Laughter). Now, if anyone wants any questions answered I shall be glad to either answer them myself or pass them on to the speaker to answer.

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Q. I would like to know whether there is any great benefit from the addition of a sticker to the dust?

A. We have found no special advantage. We use agasol and salt. We apply the dust only.

Q. Do you follow the practice of some growers in this state of picking up the "mummies"?

A. That is a good plan but I don't believe many of them do it up there.

Q. You get results without that?

A. Oh, yes.

We had a very severe hail storm up in New Jersey when the peaches were almost fully grown and the growers up there immediately got out their sulphur lime dust and that worked out very nicely. Then there was an experimental block that we had that we couldn't quite get to and we missed dusting that and the result was that we had brown scar on that although it had been previously dusted and the rest of the trees had very little brown scar trouble. We think, therefore, that it has been demonstrated plainly that it is better to dust after you have a hail storm. After a hail storm our men always begin operations as soon as they can.

MR. NEWCOMER: Does the fineness of the sulphur have anything to do with the benefits resulting from its use?

DR. MARTIN: Yes. I think there is no question about that, because the sulphur ought to be in a very finely divided condition. For instance we have this new colloidal, and the 300-mesh sulphur and there was some work done on this class of sulphur. We placed some of the spores in it and those spores grew very nicely; they put them into the colloidal sulphur and they died at once. That was due to the difference in the size of the particles. In other words the finer and dryer the sulphur is the better will be the results you get.

Q. Do you find that there is much difference in the way the distributors supply the different trees? There aren't very many machines made today with a nozzle that will distribute the dust evenly.

A. It is very hard to find one that is successful that way. I have used a "Niagara" machine and I find that in order to

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make any success at all you have just got to get the tree covered.

Resolution in favor of a Horticultural Building at the University of Maryland

At this point in the meeting, Mr. J. Andrew Cohill acted as chairman of the meeting and stated that the members of the Society were anxious to discuss the possibility of securing a Horticultural Building at the University of Maryland from the present Legislature.

A large number of prominent fruit growers from all sections of the state stated that better support for the Horticultural Department of the University should be obtained from the present Legislature if possible.

Many growers who had attended the "Fruit Growers' Short Course" held at the University during the past winter stated that the equipment was very meagre, and that conditions were badly crowded. They stated that a new building for this industry should be available, and more funds for equipment and maintenance. All expressed themselves as very pleased with the nature and amount of research being conducted in Horticulture under the conditions, and stated that the size and importance of the industry in the state warranted much better support.

At this point in the discussion the Chairman of the Resolutions Committee stated that his committee had already drawn up resolutions concerning this matter, and if those assembled wished them presented at this time, he would be glad to read them. These resolutions were then called for.

Mr. W. Lee Allen, Chairman of the Resolutions Committee then read as follows:

WHEREAS: The development of the Horticultural industry in Maryland during the past fifteen years has been such as to give it a preeminent place among the agricultural industries of the state and has caused this state to be considered among the leaders in the production of horticultural crops in the United States—and

WHEREAS: In the growth of the industry in its various phases, including orchard fruits, small fruits, truck crops,

floral and canning crops and landscape gardening, there has developed a constantly increasing need for the investigation of many problems, the training of young men for the industry and increasing demand for extension work in this subject in all the counties of the state—and

WHEREAS: The President and Board of Regents of the University of Maryland have requested the Governor and Legislature to provide an adequate Horticultural Building in which provision will be made to carry on work for the benefit of the industry in the state—

Be it therefore resolved: That the members of the State Horticultural Society in meeting assembled at this its Twenty-Ninth Annual Session hereby heartily endorse the request for this much needed building at the University and urge the Governor and Legislature to seriously consider the earnest request of the great body of producers of horticultural crops for this long delayed recognition of this industry in the state.

Be it further resolved: That a copy of this resolution be sent to His Excellency, Governor Albert C. Ritchie, the Chairman of the Ways and Means Committee of the House of Delegates, the Chairman of the Finance Committee of the Senate, each state Senator and member of the House, the Chairman of the Board of Regents, and the President of the University of Maryland.

THE CHAIRMAN, MR. COHILL: This resolution seems to embody just what the members desire. What is the wish of the meeting?

It was moved, seconded and unanimously carried by a rising vote that this resolution be adopted by the Society.

THE PRESIDENT, MR. ENGLAR: The next paper on our program is by Mr. P. D. Sanders on "A Method of Determining the Summer Emergence of Codling Moth under Field Conditions."

A METHOD OF DETERMINING THE SUMMER EMERGENCE OF CODLING MOTH UNDER FIELD CONDITIONS

BY P. D. SANDERS, Assistant Entomologist, College Park, Md.

Dr. Auchter has asked me to explain to you a practical method of determining the time of emergence of the summer brood of codling moth under field conditions. In the discus-

sion of this method it is not my intention to make entomologists of any of you. God forbid! But I do hope that in the very few minutes I am going to talk to you I may be able to interest every fruit grower here in the life history of the codling moth. Unless you are interested in the life history and seasonal history of the codling moth and study it from year to year you can not fight it successfully. This is particularly true for 1927, when apple growers must control this insect without sending fruit into the markets carrying heavy arsenical residues.

It seems wise for Maryland growers in 1927 to concentrate all efforts in codling moth control against the first brood worms and the early worms of the second brood. That is, a thorough job of spraying, using arsenate of lead at the rate of 3 pounds to 100 gallons of spray, must be done at the Petal Fall and Three Weeks sprays to control the first brood worms and especial care taken to cover the foliage at the Five Weeks spray in order to control the early worms of the second brood. This paper is given with the idea of familiarizing the grower with the method used to determine the time to apply the Five Weeks spray for maximum effectiveness.

To appreciate the value of the method explained below it is necessary to review briefly the life history of the codling moth throughout the year. In the fall the worms crawl from the fruits and spin silken cocoons in the soil or under the loose bark of the tree trunk. These silken cocoons protect the worms from the cold and wet of winter. In the spring when tree growth begins the worms change to pupae. The pupa is the mummied or resting stage in the life of an insect between the worm and the adult. The adult moths begin to emerge when the apple trees are in bloom. They mate and begin egg laying immediately. About three weeks after most of the petals have fallen from the blossoms tiny worms hatch from these eggs and begin to make their way to the fruits. The infested fruits drop to the ground. The worms complete their growth inside the fallen apples and crawl onto the tree trunk to pupate. The adults emerging from these pupae lay the eggs for the second brood worms.

To determine the time these moths emerge under field conditions the following equipment is necessary:

1. A quantity of corrugated pasteboard cut in strips three inches wide.
2. A quart fruit jar.
3. Some muslin cloth and a cord.

Locate an apple tree that is likely to be heavily infested with codling moth—an old unsprayed tree near the orchard is ideal. Scrape the loose bark from the tree trunk for about eighteen inches high. Bind a strip of the corrugated pasteboard around the tree with a cord, about one foot from the ground. *This band should go on four weeks after blossoming time.* The worms will pupate under this pasteboard band. Keep a watch on the band to learn when the first moth has emerged. This will be shown by the presence of a brown pupal skin protruding from the pasteboard band. As soon as the moths are known to be emerging remove the band, roll it and place inside the quart fruit jar. Tie a piece of muslin cloth over the mouth of the jar and place it on its side in a tree crotch. The emergence of the moths in the jars will be simultaneous with those in the orchard. Since more than a week passes before the eggs from these moths begin to hatch sufficient time is given to apply an arsenical spray.

Q. How long after blossoming time did you see the second brood? In other words, about how long a time is there between the first and second broods?

A. About one month after blossoming time.

THE PRESIDENT, MR. ENGLAR: The next paper before us is on the matter of methods used to study apple scab spore discharge under field and laboratory conditions. I will call on Professor C. E. Temple.

METHODS OF DETERMINING THE TIME OF DISCHARGE OF APPLE SCAB SPORES

BY PROFESSOR C. E. TEMPLE, University of Maryland

Previous to 1919 apple scab was of little consequence to the fruit growers of Maryland; but beginning with that year scab suddenly became general over the State and serious in many of the orchards. Since that time the losses in grade to our fruit growers have extended from 2% in 1925 to 4%

in 1919, 1921 and 1922, the average annual loss for the eight years being 3.3%. These losses seem large compared to what obtained before 1919, when only a trace of apple scab was recorded for the State. However, the average annual loss of 3.3% in Maryland is small compared to a similar loss of 5.5% for the United States during the same period. The disease has now reached such proportions that it may be serious any year when weather conditions favor the development and the spread of the causal fungus.

Nearly everyone is familiar with some of the symptoms of apple scab, however, these may be given here to make sure that we are all thinking of the same disease. On the leaves there are definite or indefinite spots often covered with a brownish or grayish mildew-like growth on both surfaces but mainly on the lower; severe infection sometimes causes considerable premature defoliation. On the old leaves on the ground the fungus may be seen in early spring with a reading glass as numerous, tiny, black pimples breaking through the skin of the leaf. These pimples are the spore fruits, each of which produces a large number of spores. Sometimes there are hundreds of spore fruits on a single leaf and each spore fruit may produce a hundred or more two-celled spores. These spores are easily identified since the cross-wall which divides the spore into two cells is not in the middle but rather to one side making one cell larger than the other. On the twigs small circular spots may be formed resulting in scaly or rough hark; also a dark mildew-like inconspicuous growth may be observed more abundant about the buds Twig infection, however seems to be rare. On the flowers there are often numerous very small spots on all parts, especially on calyx lobes. On the fruits few or many circular, conspicuous spots more numerous about the calyx end cause more or less deformity, puckering and cracking. This is often followed by decay in storage and sometimes by secondary (pin-point) infections just before picking or even during storage. The larger spots usually have a light-colored border.

The disease has been of such great economic importance to the fruit growers that scientific workers in many parts of the country have devoted considerable time to the study of it in the hope that its control might be made more certain. These

studies have established the following facts: (1) The disease is caused by a fungus. (2) This fungus has two phases or stages of growth, one known as the perfect stage, on the old dead leaves during winter and spring; the other, the imperfect stage, on the living leaves, calyx lobes, fruits, and tender twigs during the spring and summer. (3) Two kinds of spores are produced: (a) One kind of spore, (a two-celled spore) produced on the dead leaves in the spring is actually shot into the air where it drifts along with the air currents. Some of these spores lodge on the tender parts of the apple tree (leaves, flowers, fruits, buds) and produce primary infections. (b) These primary infections produce another kind of spore (a one-celled spore) which is distributed by rain, wind, etc., to other fruits and leaves and to other places on the same fruits and leaves, producing secondary infections. (4) When scab has become established in an orchard, the severity depends primarily on weather conditions; the more rainy days there are in the spring and summer, the more scab there will be. Rain for a few hours, preceded and followed by dry weather is not nearly so serious as a drizzling rain for three or four days at a time. These rainy spells occurring any time within ten weeks after the pre-pink stage are of great importance in scab distribution and primary infection. (5) By means of spore-traps which catch the spores, it has been definitely established that the spores are shot into the air from the old dead leaves, mainly during rain. (6) Millions of spores are discharged. In Wisconsin one of these traps which was attached to a motor-driven gas meter caught an average of 289 spores per cubic foot of air for a four-hour period during rain. (7) Under favorable rainy conditions the bulk of scab spores is discharged before the apple comes into full bloom. (8) Scab spores germinate immediately. In a day in our laboratory, long germ tubes are formed. In nature under favorable conditions infection takes place in a few hours after distribution of the spores. (9) Fungicides (sprays and dusts) are more effective when applied just before spore distribution than after distribution. (10) In an ordinary year of alternating wet and dry periods, there are usually several periods of spore distribution. (11) For best results (most economic control) spray thoroughly, with a good

fungicide (concentrated lime-sulfur testing 32° Baume at the rate of 10 quart to 100 gallons of water) according to weather (mainly moisture) conditions following in general an approved spray schedule or spray service.

From what has been said it will be noted that the important thing to determine in the control of the disease is the time of the first discharge of scab spores. If a fruit grower can determine that time he at least has an opportunity to make fair headway in the control of the disease. This critical period can be determined by the careful examination of the old leaves on the ground. The fungus which causes the disease, lives over winter on these old leaves, growing intermittently as weather conditions permit. It seems that a mild winter is much more favorable to the growth of this organism than a severe winter. At any rate, about the time the apple tree begins to send out flowers and leaves, the scab fungus reaches a stage in its development when it matures its reproductive bodies (spores). These spores appear to be ready for distribution just as soon as they mature. Consequently one method of determining the time of the distribution of the spores is to determine whether or not matured spores have developed on the old leaves. This can be done by crushing or dissecting the spore fruits and examining these with a high power microscope. For a number of years, therefore, we have had leaves for examination sent to us in the spring from various orchards in the state. In most cases we have been able to determine within a day or so and in a few cases the exact time for making the first scab spray application.

Spore traps have been used rather effectively in determining the time of the first spore discharge as well as succeeding spore discharges from any given orchard. A spore trap consists of a device for catching the spores as they rise from the leaves on the ground. These traps are of various kinds. The one used in Maryland is set up as follows: A burlap bag is placed in close contact with the soil and fastened with weights or stakes. Leaves from a scab-susceptible variety, such as a winesap are spread over the bag and covered with a fine-mesh woven wire or screen wire. Small pieces of clear glass (1 x 3 inches) coated with a film of vaseline are placed on the wire with the coated side down and directly over the leaves

with the most scab growth or spore fruits as determined by a hand lens or reading glass. The spores are shot from the old leaves through the meshes of the wire onto the glass plates where they stick and can be examined with the compound microscope. This instrument should magnify at least 250 times, preferably about 500 times in order to see the spores clearly. These plates have been changed daily and mailed to us at College Park where they were examined for scab spores.

It has been interesting to note that the presence of spores on the plates has checked up exactly with the time of the rain fall in the various parts of the State where the traps were exposed. This seems to be a very practical method to use where a trained man is available to examine the plates. It is necessary to examine them daily in order to determine the exact time to begin spraying operations.

It has already been noted that a more complex spore trap was used in Wisconsin. In this case by means of a motor-driven suction pump, air was sucked through a filter into a gas meter which measured the air just as the meter measures gas to the consumer. This spore trap proved beyond any doubt that at certain times during rain the air is laden with scab spores. This type of spore trap would probably not be practical except in unusual cases where very large orchards can support a plant pathologist.

During the past spring our spore traps stationed at Snow Hill, Ridgely, Whiteford, La Plata, College Park and Smithsburg gave us very definite information for the fruit growers. The dry weather preceding blooming prevented spore discharge. With very few exceptions there were no showers during this period. A shower at Snow Hill brought forth a small discharge of scab spores. Spraying for scab therefore in the spring of 1926 before blooming time was in most cases a waste of valuable assets. We are, of course, learning more and more about the disease as we study it from year to year. We have now, as you see, reached a time when it is not necessary to guess at the time for making the first scab application. An ordinary intelligent person with a little training and a microscope can determine the exact time of spore discharges of the apple scab fungus.

Q. Professor Temple, why is it that last year we had practically no scab, following two very bad years?

A. Well, the dry weather was in our favor last year; the dry weather held the scab fungi back. Another thing, do you remember how hot it was? That helped us some too. Thus fungus is peculiar—it doesn't like warm weather.

Q. Mr. Allen, do you think that that is a practical way for the fruit grower to determine the presence of this trouble?

A. I think it is the best method known, so far. It depends altogether on the weather. Last year it wasn't necessary in some of our orchards to spray at blooming time. Even after that, in some of the orchards it was hardly worthwhile to spray, although I think one should spray, as a protection, probably at the first bloom. You have to control your scab by an early spraying, and then if you do it again about four weeks after blooming you are not going to have much here in Maryland, although you may have it in New York.

The unfortunate thing about scab infection is that unless you have entirely covered the leaf there will still be danger of some infection. If the leaf is a little bit larger it may not cover the leaf. It seems to be necessary to spray frequently while the leaves are enlarging.

MR. NEWCOMER: Does the dormant spray have any effect in keeping down the scab?

A. I would say that the delayed dormant would, if it is done just when the buds are beginning to open. I would use the winter strength if I were you—the lime sulphur concentrated.

MR. NEWCOMER: Should we use that at the same time as we do the wet spray?

A. I should prefer to use it as a wet spray, because we have gotten constantly better results by the use of the wet spray on scab.

Q. Is Bordeaux of as much benefit as the sulphur?

A. Bordeaux is of much more benefit than the sulphur; but you take some chances of injuring the fruit on the varieties which are susceptible to Bordeaux injury, like, for instance, the Winesaps or the Ben Davis.

Q. If that were put on in the form of dust, how would that work?

A. That wouldn't eliminate the burning. In dusting, the leaf is covered with specks of dust and there are spaces for these spores to germinate and go into the leaf.

Q. What results have you gotten from the use of lime sulphur without the use of delayed dormant?

A. It just depends upon the weather. If the spore is coming out in time to hit the delayed dormant and you don't use that spray at that time you are going to have some trouble. But if they don't and you use the pink or pre-pink bud-spray before the flower is open or when your closed buds are just starting to open I think that would be the proper time to catch these spores.

MR. MOORE: Mr. Chairman, you can spare me about a minute and a half? These gentlemen have told you how the country agents have coöperated with them and I want to tell you now to what extent we have coöperated with them. We started in with a very small list for sending out our information and at that time it could be very easily handled. Now we have increased that list to the point where we have about 430 names on it and the question arose, how is that service to be rendered. We were sending out information on this pest that seemed to produce results, and at that time we had an increasing number of requests that our service be extended to them; that they were willing to pay for it, if necessary. Therefore we got out a system of postal card information, and our specialists send out telegrams to us regarding the situation so that all our stenographer has to do, after we get that telegram, is to cut that on to a stencil, run the cards through a mimeograph and in 15 minutes we have these cards in the Postoffice. We can do that in 15 minutes time. We also send out other information—somebody will send in a request, saying, "Give me some information on this matter of arsenical residue; or when do you put your last spray on, for the summer." Now, we are going to try to put on one addition to that service this next summer and that is to put on a little sentence to this effect: "If you plan to fix up your trees with our help you have got to eat an apple a day," or, "If you eat an apple a day for 90 years you won't die young."

THE CHAIRMAN: If there is anyone who has anything to tell the convention or any resolutions to bring before it, they should take it up with the chairman of the proper committees and it will be presented and acted upon.

The convention will meet this evening at 7:30 instead of 8:00 o'clock

Now we have just one other item on this program, a round table discussion on spraying. Everybody will be permitted to have a part in this program. If any of you have any spraying problems we want to hear about them right now.

MR. ALLEN: You say that we can get control of the aphis by using the lime sulphur and nicotine, which costs more than any other spray. What I would like to know is: Has anything yet been developed which is safer and cheaper to apply than this compound?

MR. CORY: I don't know very much about rosy aphis but I will say that I have talked within the last week to Professor Parrott and Professor Hodgkiss who did some of the best work on rosy aphis which has ever been done and also to several other members of the Association of Economic Entomologists and I think that they are agreed almost to a man that there is nothing quite as efficient or effective as lime sulphur and nicotine and without taking up that question with some of the members of that organization and getting their answers on that question, I should say off hand that there is nothing that I know of by which you can be so sure of controlling the rosy aphis. Now, if you want to take a chance, any of you, it is entirely up to you. We have seen orchards entirely cleaned up of rosy aphis, with oil and then within a few miles from there we will find a place where the same mixture has failed. As long as there is no uniformity in the result it is just simply a gambling chance to take.

As for the question of reducing your costs, Mr. Carpenter has used the emulsion which Mr. Sanders told you about this afternoon. That is about the cheapest thing possible to obtain. I understand that there is a firm in Georgia which is going to put it on the market very shortly but I don't know of any commercial firm that is handling it in this part of the country as yet. If I named it just now you would simply come back at me a few months from now, and ask, "Where

can you get it?'' You might try this oil, when it comes out or you might try the emulsion. Perhaps either one of them would be cheaper.

Mr. Carpenter, I will turn that question over to you for a brief description of how to make that substance. I would not undertake to give the description myself.

MR. CARPENTER: Of course, ladies and gentlemen, the *oil* emulsion is not one of the materials that acts as the best substitute for lime sulphur and nicotine. It does, however, kill scale and will perhaps give a practical method for the control of aphis. I don't mean by practical control one that is a complete commercial success, because in our experience we haven't found any treatment for rosy aphis that was a commercial success. Of course this other emulsion which we have used was based on the gum oil derivatives, and is manufactured by a certain process with both ingredients of the former emulsion combined. In addition, it can be made with an oil content of 95% as against 66-⅔% with the standard gum oil. We are trying to evolve something that will be strong but safe to use.

It has been very gratifying to us, also, to find considerable interest being manifested in this product during the last year.

THE CHAIRMAN: Is that in any sense a spraying oil, an oil preparation which you can use in the summer time and also for the delayed dormant without danger of injury? I understand that in the West it has sometimes produced much finer results than we have had with it here in the East. Is that correct?

MR. CARPENTER: It has that reputation in the West but so far as the information we have been able to obtain would seem to indicate, and by its performance in the East, that reputation may not be entirely justified, especially in connection with lime sulphur, as some people have recommended its use. When it comes into contact with lime sulphur it creates a different compound, whose properties are not yet entirely known or understood and in view of that I would not urge you to mix the compound with lime sulphur under any circumstances.

Q. I wonder if Professor Cory could tell us anything about whether, in the spring of the year, any dependence could be

placed on the weather as a gauge for whether to spray or not to spray for the aphis. I have heard it said that where you have plenty of the natural enemies of the aphis and the season is favorable you don't need to bother yourself about the nicotine. How much shall we depend upon that kind of thing? Have you ever done any experimenting on that?

A. No. The only way that we can come anywhere near prophesying aphis conditions is by the weather. You go to one place and you will see a man go all over the place trying to find an aphis and it would be impossible and yet you come back there later and you find out that they have had a bad infestation. I think on the whole that condition has prevailed throughout the East in some years, especially when the nicotine is left off. I think that the men who used nicotine last year were wise in so doing. There was one group met to discuss the problem of what they were going to do about this matter and to find out how to reduce their costs and they spent one whole week at it. Finally they came to the decision to leave out the nicotine, and you are all familiar with the result.

The safest thing you have in your power to do, then, it seems to me is to follow the schedule.

A MEMBER: The suggestion that I am going to launch here, or which I am at least going to try out on my own orchard is to cut out about ⅓ of my acreage. The trouble before us is that we are making the mistake of trying to get out too large a crop and thinking that that is all we want, neglecting quality and even a better value. If we concentrate on apples with which we can give a better value we are going to actually come out ahead—we are going to have more money in our pockets. We are going to go ahead down at my place and put all our money, and time, and work on the higher-priced varieties and we believe that we can make more money.

ANOTHER MEMBER: I think it is a wise plan.

MR. GOLD MILLER: I would like to tell an experience that we had out in our own orchard. We had several men out there to my place, from the college and they went all over the place, looking over all the trees. They didn't find a trace of aphis. They did, in fact, repeat that three different times, with the

same result. Then, lo and behold, along in June they began to appear and I would just like to know where those things came from. I know that we had plenty of them but there wasn't any of them around there all the spring but when they did turn up—my!

Then there is another thing that I would like to say. We had that matter up this morning of thinning. Mr. Cohill was in our orchard looking it over and he said, "Boy, I don't believe you can pick United States No. 1 Grade." I said, "I don't know about that." We had a bunch of men out there thinning and we went and mentioned to them what he had said, that they wouldn't be United States No. 1 and they had better just throw them on the ground, that being the cheapest way of picking the apples, but we packed 45 cars of apples and practically every one of them was United States No. 1, when they thinned up in that case.

MR. WHITE: The early export market was good this year and we got plenty of fancy Northwestern Greenings. I had about 11,000 bushels and they were bringing 90¢ a bushel at home and we sent 2¼ and 2¾" apples abroad and they brought $4.25 a barrel net, and here at home we were getting 90¢ for the fancy threes.

A MEMBER: I think we want to look into this export proposition and study the market very carefully and see if some of our growers can't get a better price for some of their good-sized apples than they have been getting. There are a large number of these good sized apples sent over there from the Western Coast every year and they meet with a ready sale. As it happens, the apples that we send over there are the lower grade apples and they are sold by weight. The dealers figure that there will be anywhere from 30 to 40 pounds more in a barrel. It isn't the dealer,—it is the consumer, because they make this high profit on smaller apples. In Europe you do see plenty of large apples and you see them sell at an average of 50¢ apiece, at the candy stores and fruit dealers, like they sell oranges and grapefruit here. They have a yellow apple over there which looks very much like our Grimes Golden and has a shiny skin. That retails from 40¢ to 50¢ apiece. You see them in the restaurants and fruit shops and delicatessen shops. Now when I sold some apples to a large

dealer abroad I had to wrap each apple up in a white paper. They are used in hotel restaurants and the like, sometimes done up in the original box. I have known people over there to beg me to send over 3½" apples and then there are others over there who say that they can't use them. I knew of one individual who counted every apple in a shipment. They consider that a 4" apple is the best treat that they can have in France.

The only trouble is that we have never developed the trade. We have got to get close to the dealer in apples. The fancy dealers across will pay us well for our products—they will pay almost any amount within reason for a fancy barrel of fruit. There are places in England where fancy apples sell for 4 s. apiece,—about $1 apiece, just like the ones we grow here in Maryland.

MR. CARPENTER: In regard to this export situation, it is probably true that there could be developed in England and in European countries a market for the large sized apples but it is a question in my mind if it would be desirable for us to develop that market. The large sized apples are, on account of their size, much more perishable articles and we must simply do the best we can with them. There has been some difficulty in having goods arrive in England in good condition. Therefore it seems to me that we must take these factors into consideration.

Then there is another consideration; there will always be a large number of small apples grown and we must have a market for them if we are to make as much as we should; therefore it appeals to reason to foster the sale of the smaller apples in the European countries and make this extra profit which is possible in our own country on the big ones, rather than give it to the European trade.

Now, it has been our experience that these buyers who have purchased on the basis of 3" or 4" apples, were willing to take only a very small per cent. of their apples above 2¾". It was only under the most fortunate circumstances that we were able to get them to take more than a very small percentage of the apples.

Thereupon it was moved, seconded and carried that the convention stand adjourned until 7:30.

THIRD SESSION

Tuesday Evening, January 5th, 1927

THE CHAIRMAN, MR. J. WALTER ENGLAR: The meeting will please come to order. The first on our program is an address by Mr. John W. Gorby, Secretary of Apples for Health, Incorporated, Chicago, Illinois.

INCREASING THE CONSUMPTION OF APPLES BY ADVERTISING IN A NATIONAL WAY

By J. W. Gorby, Chicago, Illinois

Mr. Chairman, Ladies and Gentlemen: I am very happy indeed to be here tonight. I found this morning while sitting here listening to the speakers that it wasn't easy to hear some of them, but if any of you have any difficulty in hearing me, or feel yourselves going to sleep just get up and rise in your place, and I will know what is the matter with you.

This is the seventh Horticultural Society meeting that I have addressed, within the past two months, and every one of them has given its unanimous endorsement to "Apples for Health" and in every one of them signal advancement has been made toward our goal, which is a National Association of Apple Growers.

I stand before you tonight as the living representative of the apple growers for the first time in your history, to show you that the United Apple Growers have a face and a voice; the apple growers from Washington and Oregon are standing shoulder to shoulder with the apple growers from Illinois, Michigan, Indiana, New York, New Jersey, Virginia and Maryland and we are going to stay together. I contend that as long as we stick together, work together, and pray together as we did this morning, there is hope for us as apple growers.

I love to talk to a man who prays. There is hope for him. And there is hope for the organization that he stands for. You may think that that is kind of funny talk coming from an old Army Officer. Well, I have been a Methodist for 28 years. Recently I was down there in the State of Florida and I met an old Baptist preacher down there and I was telling him about the religious service which I attended and

then I told him about some colored people down in the South who had a large class of converts and in order to make their service more impressive, as they were Baptists, they held it in the river.

Everybody went in and got baptized but one—they asked him why he didn't go in and he said to the preacher, "I'd like to be a Baptist, and I will be a Baptist, but I've been sprinkled." The preacher said, "Sprinkled, heh; boy, you's never been baptized; you've been dry-cleaned." (Laughter).

That Baptist preacher looked at me out of the corner of his eye and then he went on to tell me about a revival they had down there and they held the immersion there with the usual crowd, attending, at the river. Among the crowd was a group of boys who were, perhaps, duly impressed. They took it all in and then they thought it would be a good plan to have an immersion of their own. So they went home and set about it. They didn't have any river available but they did have a washtub and they filled it with water. Then they did a little dipping of their own. A chicken was immersed and flew squawking away from the tub; next they tried it on their pet duck, and she kind of liked it; then they tried the dog who didn't mind it so much, but ran away as soon as he could; then they tried their pet pussy-cat. But she squirmed and yowled and scratched and fought so much that they couldn't do anything with her. Finally, one of the boys said, "O, boys, let's just sprinkle her and let 'er go to hell!" (Laughter.)

So, I assure you in all sincerity that I am mighty happy to be here with you tonight. It is a good place to be. I said, right away when I saw this meeting open up this morning the way it did, "That meeting is going to accomplish something because it is going to be in the right spirit."

Now, I wonder what part you are going to fill in this great movement. I am sure that you are not going to play the part that the mother of a good football player out in Iowa said that her boy played on the team. You remember, "Iowa, where the tall corn grows." Well, this was an awful blow to Iowa and the state has never since gotten over it. This mother was proud of her son, and it seems that someone was talking to her about her boy and asked "What position does your boy

play on the team?'' She said, ''I can't just remember what position he plays. But I think it's drawback.'' (Laughter.)

That is a dangerous position to play in an apple organization as well as a football team. Now I don't know how much you know about advertising and the part that it plays in our daily lives, but it is quite an important part.

I am going to tell you about another football player. This player was a great athlete in high school and the head of this particular college saw this athlete play and he said, ''We have got to get this athlete into our college and he will help us to win our games, again.'' So, he made a personal visit to this fellow and induced him to come to this college and then told the head-examiner to be easy with him in his test, and to get him into the college at all costs. So the head examiner passed him. He went ahead and won the games for them, but in the meantime he was attending the college classes, and it happened that he came into one of the classes of this college president himself and he was simply impossible. He didn't know anything.

So the president went to the examiner and said to him, ''Here. We can't keep this boy in the college. Why he doesn't know anything.'' The examiner said, ''Well, you can't blame me. You told me to let him pass, anyhow. The president said, ''Yes. That's right. But I am just curious to know how you passed him. What questions did you ask?'' The examiner said ''I asked him just two questions. The first was 'What was the Declaration of Independence?' He said, 'The Constitution of the United States.' Of course that was wrong. Then I asked him, 'What is sulphuric acid?' He said he didn't know, and that was right. I passed him with a rating of 50%.''

I wonder if we can't pass with a 50% grade on advertising. Just about, perhaps.

You are here in a representative capacity. Don't think you are just here to sit and hear this speech and enjoy it and take it all to yourselves, but go out into your own respective communities and spread the ''Apples for Health'' slogan. Represent ''Apples for Health'' in every way that you can. Spread the news around to the best of your ability and get the apple growers together that will enter into this pro-

gram of apples for health. Get a good bunch of individual, native American men together who will work for the ideals that we are trying to achieve. That is what we have been needing all of these years. Can you hear me all right in the back of the room? I shall have to talk fast to get over the ground which is ahead of me, because this is the biggest subject and the most important subject which you have had introduced into your association or will have for the next seven or eight or ten years.

Now I begin to see a man scrooch down in his seat as though he thought it were going to cost him money, to advertise the apple. It is not going to cost the grower anything, in the long run. Do you ever complain about paying any advertising bills? No. Yet you pay them all the time. Every time you buy your little girl a stick of chewing gum you are paying William Wrigley to advertise his gum. Everytime you buy it you are paying his advertising bills.

And when you advertise apples, the man who pays that bill isn't going to kick. He is going to be happier, healthier, a better husband and easier to get along with because he eats apples.

Now you men of course are interested in learning how the growers in other states feel about this movement. Men and women, as honestly as I stand before you tonight, as nearly as I can interpret what West Virginia, Illinois, Indiana, New Jersey, Michigan and the rest have told me to tell you, as nearly as I can offer a positive interpretation they feel that, not that it ought to be done, not that it can possibly be done, or that it might be done, but that it MUST be done.

That's how serious the thing is. The growers' very existence depends upon whether Apples For Health, Inc., can increase the demand for apples. And our success will be measured largely by the question of whether I can, here, tonight, with the evidence that I have here tonight to present to you, convince you of the importance of this movement.

It *must* be done. I had a man from West Virginia come to me and say, "If you can put this thing over it is going to be helpful indeed. My very life depends upon it. My business as an apple grower is gone unless we can build up a demand that will last us through. In the last three years I

have written off a debit of $17,000 on my apple crop alone." I have no doubt that in Maryland you could duplicate that in many instances.

However, I don't want you to take my word for all of this. I want to have you hear, in the words of the growers themselves, just how they feel about this movement. This is a letter from an Ohio grower. (Reading.)

This is a tremendous emergency. That is what this Ohio grower thinks about it. Now I have other letters here, which we have had from these growers to which I would like to call your attention, to show you just how some of the other growers look at this movement. This one brings out the importance of advertising on a large scale, which we are contemplating. (Reading.)

Then here is a man from Idaho who sends in his check.

A man in Virginia duplicated that.

In the Michigan convention after a talk from your executive secretary they came in as a group—eighty of them, and endorsed and accepted the movement. In New Jersey there are a very live bunch of men and we have gotten 150 new members in New Jersey alone. And that kind of thing is still going on. We have gotten 1,000 members for this organization within 90 days and I will tell you in a minute where the money comes from to finance this campaign. We have a unanimous resolution from the growers in Indiana, another from the Illinois growers; another from the Southern States Apple Growers' Association and still another from Massachusetts, is expected, where I will appear tomorrow as representative of our organization.

Our representative in Massachusetts, Prof. W. R. Cole, a professor at Amherst, was the organizer of the Antioch cooperative.

In Pennsylvania you have the head of the Bureau of Markets, Mr. Taylor. Many of you probably know him. The Hudson Valley is represented by Mr. Russell Horner. We have 200 members up and down the valley in Northwestern New York, along the Hudson river.

In the Northwestern section of the country we haven't done anything yet. When we get it organized throughout the other sections of the country all we will have to do will be say to

the growers of the Northwest, "Here is a national movement. Come in," and we know that they will come in, with a mighty power and a considerable sum of money but we don't want to try to get them into this until we have a real, honest to goodness national organization. But Doctor Decker, our representative, who went up there and interviewed them reported favorably. I expect to go up into the Northwest, myself, soon, and talk with these people.

Then there is another question which some of you will probably want to know and that is, "How do the Commission Merchants feel about this?" I later met their secretary, Mr. French, in Washington, and he told me that they are with us on this, whole-spiritedly and will support us in every possible way.

I have here in my possession a copy of the official proceedings of the National League of Commission Merchants of the United States and I have another letter here from Mr. French in which he commends this movement in the most flattering terms. Then the apple growers are not in conflict with the commission merchants nor liable to lose their good will.

Mr. French speaks in the most glowing and sympathetic terms of our movement. The man to whom I refer is probably as well known in Maryland and Virginia as he is in Indiana, Illinois, and other states—a splendid leader of men.

Here is the resolution that was adopted in the Illinois Society (Reading).

But many people when I have talked to them, have asked me, and it is an important question, "Are the growers really behind you in this movement? If they are, you can count us in on the apples-for-health movement'; the best answer that I can give them, I figure, is the fact that there are already nearly a thousand new members in the past few months.

Now, you may be interested to know how the manufacturers feel about this. They are helping us with donations of money. You may be confident that when a man digs down into his pocket and pays out money, that he is interested. Then it becomes his organization. I remember that I have watched the American flag as it floated over the heads of men on the march and I have seen a gray haired old man with a bronze button on his coat-lapel, bare his head as the flag went

by; and I have seen the tears roll down his cheeks and then I have watched that old man's face quiver with emotion as he looked back over the years and saw the fields riddled with shot and shell and then I saw why that flag created that effect upon him. He saw in that banner his own shed blood. It was his flag because he had done something for it.

The same is true of an organization. It is your organization only when you do something for it. You can't stand on the side lines and yell, "Hurrah, boys. Go to it," and then go back home and do nothing; that won't make it successful. We have got to have the support of every individual grower in America. We want 50,000 growers in America in this organization, and then when we get that 50,000 they are going to send delegations to Washington and other cities and look after the interests of the apple grower. You will all have to buy a high hat and Congressmen will come here and say to you, "Mr. President, it is a very great honor to meet with you this evening." These men are going to come to you when you get organized. They are going to see what they can do for you! You won't have to write to your Congressmen. *They* will write to *you*. You have got to be organized. You can't do anything in politics, general economics, or business, without an organization.

You have all heard that old yarn, I know, of the old boy with a blacksnake whip, who was driving a stagecoach. He reached out and cracked that whip and knocked a fly off the left ear of the lead horse, and the horse never even winced. Then he reached up and knocked a leaf off the tree. That made the man riding on the seat with him real enthusiastic and he said, "Does yer see this here hornet's nest? See what you can do to that." The old fellow shook his head and replied, "Nothin' doin', mister. Them bees be organized." (Laughter.)

Organization is a wonderful thing. The American Federation of Labor dominates, with its 2,000,000 members, the field of organized labor. The United States Government, carefully organized, dominates the Government of the whole country. The Standard Oil Company dominates the oil business. Yet it has been shot to pieces how many times? Nobody knows. They dominate the oil and gasoline market tonight.

The bankers—I know, because I was one of them for 12 years—are organized to the last bank. Don't think there is any competition there. They can't afford it. There isn't any in that business, and it is for your interests and mine that they are organized. In the relations existing between banks there is the highest possible degree of confidence. A banker in New York calls on the telephone or wires to an associate in Chicago, "Buy me $600,000 worth of this security or that." The transaction is completed entirely over the 'phone and the check comes in the next morning to cover it. That is confidence for you.

In the Bible it says, "If ye have faith the size of a grain of mustard seed ye can remove mountains."

Now, there is a mountain—an economic mountain, standing in the pathway of the apple growers. Mr. President, you can remove it, if you have strength of faith, and confidence, in this organization, of the size of a grain of mustard seed, to back it to the limit.

The Bible says that love is the fulfilling of the law. Cooperation, working together. That is all it is. You are as strong as your confidence in one another and in others. The fathers of our republic knew that, and one of them said, "We must all hang together now, or we'll all hang separately!"

That is just as true today as the day the old father of our republic said it. Some of our good friends have been worrying about the over head of apples for health. The manufacturers have looked after that. They told us, "We are giving you that to help you get started in this organization." He is at the back of this organization, the manufacturer.

At a banquet of the Horticultural Society of Michigan, at Grand Rapids, Mr. Taylor said, "Apples for Health is a national organization. Nothing else will suffice to accomplish our purpose." If I can make you gentlemen realize that it is a matter for the business man, the progressive grower, the commission merchant and everybody concerned in the marketing of your apples and an important, vital problem, I believe that you would rise in a body to back "Apples for Health" in its effort to better your condition.

If you could be made to realize the strength of the men who are working to supplant the apple and substitute something else on your breakfast tables, you would endorse this movement.

Recently I asked a business man in Chicago if he ate apples for breakfast and he said, "No." I asked him why not, and he said "I would eat them if they were set before me." Our job is to set apples before the American people.

Now, another question of significance. How do the medical men feel on this matter. I haven't time to read all of this excellent article prepared by one of your prominent doctors here, Dr. McCollum, as well as that given by Dr. Kellogg of Michigan, who has given us a splendid statement. Dr. Van, of Chicago, has given us this statement and I want to read it to you because it is so good that I can't pass it up.

Just briefly what he says is this: There are a great many people in this world who are suffering from acidosis. Now, apples are an alkali producing food. In our winter diet we are disposed to eat freely of meat, eggs, bread and cereal, all acid producing foods. Therefore fried apples, or apples in some other form would be a good combination to avoid trouble with acidosis.

Another thing, while I was in Baltimore today I went out and visited your wonderful Johns Hopkins University, and met Professor E. V. McCollum, Professor of Chemical Hygiene, in the School of Hygiene and Health. He put me in touch with a book he has recently written and I went out and purchased that book and have added it to my library. In it I found that one large apple represents 100 calories the same as ten prunes, 3 strips of lean bacon, 5 cups of shredded cabbage, 1 medium sized cantaloupe, 1 pound of celery, 12 to 14 oysters, three medium sized peaches, 37 raisins, and two slices of fresh pineapple, 1" thick.

There is a statment of some interesting facts from one of your own distinguished medical men. Add that to the statement which I can prove that in 90 days we have gotten 1,000 brand new members and we have the respect of all the other organizations of dealers, etc. in our work. The International Apple Shippers is an old organization and we have gotten in 90 days as many members as they have, individual men and

women. I know that you will be back of us in this movement, and if you will continue your support I am certain that we will be able to get at least 5,000 members in the next two years if you will leave a half cent a bushel for advertising.

We have distributed 275,000 of these window strips. Isn't that a pretty good little piece of advertising. We had thousands and thousands of these printed. Please let us know how many of these you can use. For automobile windshields there is a smaller size. Here it is.

Another one. "Apples bring white teeth and rosy cheeks." Why, I had a dentist tell me that if a man ate an apple every day he could dispense with a tooth brush. What could be finer and more agreeable to children, than to substitute an apple for a toothbrush. There could be nothing finer to give to your friends than a nice apple. Deep down in the consciousness of the American people is expressed the sentiment shown in the couplet:

"Eat an apple before going to bed,
And you'll make the doctor beg his bread."

Another one: "Apples for health. Children love them."

We are now ordering a half million of these emblems to put on envelopes and stationery. You can have as many of these as you want. They are 2¼ x 1½". There have been thousands and thousands of pieces of direct mail advertising sent out. 50,000 were sent out in one lot. Hundreds of speeches have been made by the Executive Secretary and our president.

I spoke before a High School group of 900 in Chicago and it was imposing and interesting to see the reaction of those high school children. We are getting up a circular under the name of the American Pomological Society that is going out to over 1,000 American publications every week. (Reading some of the captions.)

Then there is another question which is important to take up. You probably want to know how do we spend our advertising appropriation. Well, the orange growers spend 50% on advertising in National periodicals and newspapers, 15% on street car ads, electric signs, etc. 15% on educational publicity; 20% on dealer education—trying to make these

dealers feel their part in the transaction, and 10% for miscellaneous.

Now, what can we learn from their campaign? In 6 years the orange consumption has been increased; in 20 years their sales have gone from $10,000,000 to $28,000,000, the average per capita consumption has risen from 1 to 4.7 lb.

The pineapple has risen from 400,000 cases to over 5,000,000 cases and practically speaking, the producers have killed one branch of the industry to build up another, reducing it from 700,000 cases yearly to 26,000.

Now what do we learn from observing the results of this successful advertising? We learn that it takes time and it takes organization, as well as expert skill. You can see that I have here enough information on the subject. I have submitted the evidence and the jury is here,—yourselves—let's have the verdict.

You probably ask, "What can I do?" Every friend of the apple can do something. You men who belong to the organization already, have become members because you wanted to help. Now we are going to give everybody who is here tonight an opportunity to become a member of our organization, Apples for Health.

Now, remember this. We need you, and you need this organization. Sign that membership ticket right now. Take your pencil out of your pocket, and put your name down on this ticket right this minute. Mark your address on your ticket and become a member. Anyone can do it. Professor, instructor, manufacturer, orchardist—anyone. Haven't I given you evidence enough, now, that you should do it.

Now mark how many of these you want us to send you, of these sets. Give them to your dealer and help by putting them on your windshield and putting them up somewhere, where they can be seen; and then down below that put down the number of slips you want. Then put down there whether you will give us ½¢ a bushel on your apples. That goes directly for advertising and publicity work in your behalf.

Now I am sorry that I had to "rush" through this very important message, and I want to express my kind appreciation to you for listening so patiently. A new day is dawning

and with apples for health to help, the apple industry will be on a sound, steady basis; there will be a good, strong demand all the while for your products and the American people will pay the bill, and pay it gladly, and they will be healthier and happier because they eat more apples.

Your president here reminds me to ask you to please pin a $2.00 bill to the ticket and mark it paid. Or if you prefer you may make a check, payable either to Mr. McCandliss or myself. I thank you very much for your courtesy. Goodbye and Good Luck! (Applause.)

THE CHAIRMAN: Now, I am going to ask Dr. Auchter, Head of our Horticultural Department to present the next speaker.

DR. AUCHTER: Mr. President, I am sure that the older men here all know Dr. L. H. Bailey very well; some of us younger men perhaps have not had the pleasure of knowing him except through the books on horticulture which he has written. We have all heard of course of the Horticultural Deparment that he built up at Cornell University, and that later he became Dean and Director of the College of Agriculture and Agricultural Experiment Station of New York State. Now, back several years ago, Dean Bailey wanted to build up a strong Dairy Department at Cornell University. He wanted somebody who had lived on a farm, and in addition one who was a trained scientist, and a good business man. He finally selected the man who is to address us this evening. This man went to Cornell as Head of the Dairy Department and remained from 1904 to 1908. I went to Cornell in 1908 to study horticulture, but pretty nearly switched over to specialize in Dairy Husbandry. The students were all praising the course in Dairy Husbandry. About that time the State Department of Agriculture decided that they needed someone to straighten out their problems, and so they went to Cornell and took this man back with them. He served as Commissioner of Agriculture in New York State from 1909 until 1912. It was my pleasure during that time to meet this man many times at farmers' institute meetings all over the state.

In 1912 the state of Iowa was looking for a man to serve as President of one of the largest Agricultural Colleges in the world. They finally decided that the Commissioner of Agri-

culture of New York State was the most desirable man in the country and accordingly this man was installed as President of Iowa State College.

Recently President Woods of the University of Maryland resigned to become Director of Scientific Research of the United States Department of Agriculture. The Board of Regents of our University decided that the President of Iowa State College was the man they wanted to succeed Dr. Woods as President of our University. Fortunately for our University and the State of Maryland, this gentleman, Dr. R. A. Pearson, accepted the invitation to become President of the University of Maryland.

The Maryland State Horticultural Society is fortunate indeed to have him here this evening. I know you are all anxious to meet and hear Dr. Pearson and it gives me great pleasure to introduce him at this time.

(Dr. Pearson then discussed in a very interesting way the various phases of work now being conducted at the University of Maryland. He emphasized especially the relation of science to agricultural development, and called attention in a striking manner to some of the fundamental changes entering into American life, and their relation to agricultural policies).

THE PRESIDENT: I am certainly glad that we were able to get Dr. Pearson here this evening.

Now, we have one more address, and the time is getting away from us. Therefore we want to get right ahead and finish it. This is a very interesting topic, and one in which we are all very much interested.

Professor Carpenter will now talk to us about "The Most Desirable Types of Orchard Implements and Machinery".

THE MOST DESIRABLE TYPES OF ORCHARD IMPLEMENTS AND MACHINERY

By PROFESSOR R. W. CARPENTER,
University of Maryland.

I am sure that it is not necessary to spend much time in emphasizing to those present this evening the importance of improved orchard machinery.

What the orchardist, in common with all types of agricultural workers, is primarily interested in is the question

of profits. There are two ways to make farming operations profitable. First, to get a higher price for our products, second to produce at a lower cost.

In the past most of our attention has been given to the question of selling price. At the present time, however, we are seeing a great awakening of interest in the question of cost of production.

The largest item in the cost of growing crops is the labor cost. I do not know what proportion the labor cost of growing a bushel of apples bears to the total cost, but it must be considerable. In the case of ordinary farm crops such as corn and wheat, it runs from forty to seventy per cent.

The best way to cut down this labor cost lies in the use of larger, improved machinery, and larger power units. One man with a gang plow will do twice as much as one man with a single plow, yet each man costs the same in wages. One man with a tractor will do from two to six times as much per day as he can do with horse drawn tools. Not only this but with improved machinery and greater power to handle it a better quality of work is done, and this is reflected in increased yields.

I have collected a number of pictures of improved types of orchard machines which I will now show you.

A large number of excellent slides were then shown and much discussion took place.

The convention then adjourned until 9:30 the next morning.

FOURTH SESSION

Wednesday Morning, January 5th, 1927

The fourth session of the Maryland State Horticultural Society was convened in the auditorium of Odd Fellows' Hall, Baltimore, Maryland, with the president of the Society, Mr. J. Walter Englar, presiding.

THE PRESIDENT, MR. ENGLAR: It is past time for our morning session, so we are about to open our meeting. We are going to bow our heads just a moment.

Our great Father we need Thee every hour. We know that if we go down the road today alone that we will miss some of the best things of life. We invite Thee to go with us this

day, to give us judgment and wisdom, to give us of Thy spirit. Help us to be kind and gentle and good. May we do that which is pleasing in Thy sight this day. May we walk with Thee today. We ask it in Jesus' name. Amen.

We have a very busy morning again this morning. We are sorry that we could not start exactly on time but we are doing a little better than we did yesterday morning. I am sure I will not feel quite as fidgety and nervous as I did yesterday because I am on edge when I get behind. We have the speakers of the morning present and that always makes a good program and we will have a good time this morning together and I know it will be profitable to all of us.

The first speaker of this morning session is Professor Oskamp of Cornell University. He is going to talk to us again this morning and his subject at this session is "Orchard Soil Management and Fertilizers with Reference to Amount, Size and Color of Fruit." Dr. Oskamp. (Applause.)

ORCHARD SOIL MANAGEMENT AND FERTILIZATION WITH REFERENCE TO AMOUNT, SIZE AND COLOR OF FRUIT

By PROFESSOR JOSEPH OSKAMP, Cornell University, N .Y.

Systems of soil management necessarily vary with conditions. There is no one best system. All things considered, probably the nearest apparoach to this is cultivation. But even cultivation can be overdone. That the constant stirring of the unprotected soil during the hot summer months burns out the humus and the organic matter at a rather rapid rate, there is little doubt. This loss can be partially counterbalanced by a reduced period of cultivation, by the use of cover crops, or by the application of manure. On the other hand, in the sod orchard humus and organic matter are maintained or actually increased, but the trees suffer. Although the fertility is there, the trees do not get the benefit from it until the orchard is plowed. The injurious effects of the sod can be compensated by fertilization, and this is an entirely practical system of management. Where a heavy mulch of straw or other material can be applied, this will serve to negative the bad results from grass. There are thus several alternatives that will accomplish more or less the same end.

It is only in rather recent years that the importance of a better growth in our fruit trees has been generally appreciated. It was formerly thought that growth was made at the expense of production. As a matter of fact, there is a very close relationship between the growth of an apple tree and the amount and quality of the fruit borne. The reason for this becomes apparent from a consideration of the relation between growth and fruitfulness.

A good annual growth provides for new fruit spurs, and a vigorous growth of the old spurs results in better production and larger fruit. Along the one-year-old wood, at more or less regular intervals, buds are spaced. From these buds, leaves unfold and spurs of greater or less length develop the second season. This is the beginning of a new fruit spur system, and some of these lateral growths will form blossom buds that will come into blossom and mature fruit the third year.

Inasmuch, therefore, as the fruit spurs arise from buds along the annual shoots, a terminal growth of six to eighteen inches will insure the initiation of a larger number of potential fruit spurs than will a weak growth of two or three inches. Also, fruit of the best quality is borne on these younger, more vigorous spurs.

The multiude of small branches throughout the tree, upon which are groups of older fruit spurs, are yet to be considered. The set of fruit, as well as its size, is largely determined by their vigor. The length of a spur is an expression of its vigor, because each spur is nourished to a considerable extent by the food elaborated in the leaves attached to that spur. A very short spur, perhaps an eighth of an inch long, has only three or four leaves, whereas a spur an inch long has seven or eight leaves. Thus it happens that the growth of both the terminals and the fruit spurs is associated with the production of high-quality fruit.

Cultivation has been so long advocated as a means of improving the food and the moisture supply in the orchard and has been so generally successful in promoting growth and vigor, that its value need not be questioned.

Its earliness would appear to increase the efficiency of cultivation, for the set of fruit as well as the growth and the

leaf surface of the spur, which influences the performance of the tree for the next year, are determined during and shortly after the blossoming period. If, therefore, the orchard is worked up early in the spring, by the time the trees come into bloom the soil will be made warmer and conditions more generally favorable for the production of the nitrates on which early growth is dependent.

It often happens that the rush of farm work prevents the orchard from being cultivated till June. Started at that time, cultivation cannot be expected to give the best results. If cultivation is started in good season in the spring, it can be discontinued somewhat earlier in the summer—this will tend to improve the color of the fruit. Just how much cultivation is necessary to obtain the best results is still open to question, but where the rainfall is well distributed it would seem that cultivation might be needlessly prolonged. An earlier seeding of the cover crop, too, may improve the color of the fruit, but it should be remembered that, with a heavy crop on the trees, too early seeding may result in smaller fruit.

Cover crops are a valuable adjunct to cultivation where the soil is to be maintained in a permanently fertile condition. Especially is this true in Maryland where you have a long growing season, high temperatures and an extended period of cultivation. The primary purpose of such crop is that it may be turned back upon the land to enrich the soil by its residue. Hence, the value of a cover crop can be largely judged from the growth it makes; and best results are to be expected when a crop is selected that is known to catch and make luxuriant growth in the locality where it is to be used. The advantage of a leguminous crop in building up the nitrogen supply, now known to be so vital in fruit production, should not be underestimated.

In the old orchard, the chances for the success of the cover crop can often be materially increased by seeding earlier than is sometimes practiced and also by using those crops that are more tolerant to shade or which live partially or wholly over winter, such as rye, vetch and so forth. Crops that live over winter benefit by additional light after the trees have shed their leaves. In many orchards, a mixture of rye and winter

or hairy vetch, is an excellent combination. There are several kinds of vetch, but the winter variety should be insisted on. Where vetch has never been grown before, inoculation may be necessary. On impoverished soils where cover crops are most needed they usually make the poorest growth and under these conditions a dressing of nitrate of soda and acid phosphate for the cover crop will serve to increase the humus supply.

The sod method is at its worst where the grass is removed for hay. It is by such treatment that the sod system fell into ill repute—and little wonder! Indeed, the term sod orchard has generally meant a neglected orchard. But this need not be so. Nor is the sod orchard without its advantages, for the fruit will mature earlier and color better, although this will seldom affect or offset the small size and reduced yield which accompanies this system as usually applied.

In commercial sod culture, the grass is generally mowed about twice during the summer and allowed to fall back and enrich the land. This is the usual practice where sod orchards have been successful, and invariably a supplementary mulch of straw, manure, or an application of commercial fertilizer has been made, in addition to the grass. The profitable sod orchard, then, really means a fertilized orchard, and will be more fully discussed under fertilization. While a liberal mulching with straw or similar material will give fair satisfaction, there are so few places now-a-days where this would be practical or economical that it is scarcely worthy of mention. Manure is still available for the orchard on some farms, but the supply is unusually inadequate for the purpose.

The sod method certainly has a place on hilly or stony land or wherever cultivation would be wasteful or expensive. Under a sod or mulch system, however, there is always the added danger of rodents girdling the trees or of fire destroying the orchard.

There has been much confusion and apparent contradiction in orchard fertilizer recommendations. This is not strange, in view of the wide differences in soil, in cultural treatments, and in general management, all of which have a bearing on the fertilizer problem. Also, failure to comprehend the situ-

ation in its true light dates back to the time when recommendations were largely of a theoretical nature.

The chemist early analyzed the apple and other crops and determined the number of pounds of plant food that a normal crop removed from the soil. It was accordingly assumed that all that was necessary to keep trees continually fruitful was to put back into the soil an amount of plant food equivalent to that withdrawn by the trees. Inasmuch as a relatively large amount of potash was found in the apple and other fruits, up went the cry of "potash for fruit." No one stopped to consider that practically all of our soils are so well supplied with potash as to be equal to almost any crop drain in that respect for an indefinite period. Potash was also supposed to improve the color. The dream of potash has never been exploded, but the result of the propaganda still persists here and there. Experiments have shown that the effect of potash on yield is generally negative, and the best evidence at our disposal does not credit any commercial fertilizer with the property of increasing color.

The soil analysis was next advanced as the solution of the problem, and this still engenders confidence in those who are unfamiliar with its limitations. While such analyses are valuable indeed for certain purposes, the analysis of the soil in an individual orchard is very limited in its usefulness, for the availability of the food to the tree is of more importance than the amount present, and of the availability the chemist as yet knows little.

The response of the trees to fertilizer treatment is the only safe solution of the fertilizer problem; at least, what little the pomologist knows about the matter has been gained from that source. The old order has been reversed. While formerly the elements were thought to rank in the order of their importance, potassium, phosphorus, and nitrogen, we now know that this should read exactly the opposite. Although formerly it was considered very doubtful whether nitrogen should be used at all on fruits, we now know that only rarely will any fertilizer but nitrogen be directly profitable. In fact, we can dismiss potassium at once, except for pointing out that on the very lightest sandy soils it may possibly be of

benefit. Phosphorus, while seldom of direct benefit to the trees, may in time favorably affect the orchard by causing a larger growth of cover crop or grass for mulch. Lime has never been shown to be of value in the orchard except indirectly, to encourage the growth of leguminous cover crops on acid soil.

It is evident, therefore, that the fruit grower has very little use for so-called complete, or ready-mixed fertilizers. He needs the elemental materials, which may be obtained in many forms. Nitrogen, for instance, can be applied in the form of leguminous cover crops, barnyard manure, or chemical fertilizers. If cover crops are grown, or if manure is applied, any nitrogen deficiency will tend to be supplied. Fruit growers all over the United States have now come to know the value of nitrate of soda where a nitrogenous fertilizer is needed. Of the phosphatic fertilizers, acid phosphate is probably the best and cheapest source of phosphorus for the fruit grower.

Where cultivation and cover crops are used, if a nitrate deficiency is suspected, a trial application should be made on a part of the orchard and the results noted. Such factors as short, weak growth, yellowish foliage, and failure to set fruit, if not attributable to other causes, would indicate a lack of nitrates. The growing of a satisfactory leguminous cover crop might in time take care of the nitrogen requirements. In this connection it is suggested that three or four hundred pounds of acid phosphate be drilled in or broadcast with the cover crop. This will give a better growth of cover crop and a larger amount of residue to return to the soil, which should eventually react favorably on the trees.

The sod orchard will most certainly respond to fertilization. Again nitrogen will be the important element, as the soil, the age of the tree, the variety, the length of the terminal growth, the amount and the color of the foliage, the set of fruit, and the size of the crop. The condition of the tree is the real indicator. This should be carefully watched and the fertilizer regulated accordingly.

The generally accepted time of application is in the spring of the year, about two weeks before the bloom or at the time

of the delayed dormant spray. Generally, five pounds on trees around twenty years old and ten pounds on trees thirty-five years old has given satisfaction. To determine the amount most profitable in any one orchard will necessitate an actual trial. Except for the expense, there is little danger of applying too much nitrogen to the apple orchard in sod. However, on red varieties excessive amounts will cause the fruit to be green and late maturing.

Acid phosphate may sometimes be beneficial. The benefit likely to be only indirect, by bringing about a better growth of vegetation in the orchard, which should increase the humus supply and eventually improve the trees. The time of applying the phosphate is not highly important, but probably the most convenient time would be when the nitrate is put on. An amount equivalent to the amount of nitrate of soda is suggested, but, since the acid phosphate is comparatively cheap, double that quantity is often used.

Fertilizer should not be deposited near the base of the tree, but should be broadcast, either in the spaces between the rows or somwhat under and well beyond the drip of the branches. Nitrate of soda is very soluble and will be carried down by the first rain, so it is not necessary to work it into the soil. The nitrogen should be applied by blossoming time if it is to have an effect on the set of fruit that same spring. To make immediate results more certain, it should be put on a little in advance of the bloom, thus giving a better opportunity for the rain to carry it down to the roots. Summer applications after the June drop have been suggested, with the idea of improving the size of fruit and of favorably influencing fruit-bud formation for the following year. However, pruning and thinning are probably far more effective in increasing the size of fruit. In fact, nitrates cannot be expected to make the fruit large if the trees are overloaded and delayed applications may have an unfavorable effect on the color of the fruit. Moderate applications of nitrogen sufficient for good growth when properly combined with pruning and thinning need not injure color. The percentage of highly colored fruit can be expected to be somewhat less how-

ever. But the increase in crop will actually result in a greater quantity of well colored fruit. Nitrogen reduces color in part by delayed maturity and with the season as long as it is here in Maryland delayed picking in nitrated orchards could probably be practiced to advantage.

If the trees are growing under conditions that they respond to nitrate, it appears necessary, for best results, to apply it regularly. It has been amply demonstrated that an application of nitrate before the bloom will cause many apples to stick that would otherwise drop. Therefore, in "on" years when the trees set a heavy crop anyway, often resulting in small fruit, nitrate but serves to aggravate the situation. Such a bumper crop is followed the next year, particularly in some varieties like Wealthy and York by a very light crop or total failure. At the present time, however, we know of no better way to maintain good production than to provide those conditions which are favorable to fruit bud formation and the set of fruit. Then we must regulate results by pruning and thinning. Some writers have said that old, persistently biennially bearing Baldwins and Yorks may be made to bear annually by seasonal regulation of fertilizer and pruning treatments. That such can be done has never been demonstrated in a practical way in the orchard. It is true that those practices that keep the tree vigorous tend toward more regular cropping.

A MEMBER: What have been the results with alfalfa?

PROFESSOR OSKAMP: I have seen very good results with alfalfa in the orchard although it does have a similar effect to sod. It is a legume and you don't get the benefit of it until it is plowed under and you cultivate and liberate the nitrogen.

A MEMBER: The tree gets some?

PROFESSOR OSKAMP: Yes, but it has been my experience that it is not equal to cultivation and cover crops. Under some soil conditions I have seen just as good results from alfalfa, but I think it is rather an exception.

A MEMBER: Does not alfalfa have to have better soil to start with?

PROFESSOR OSKAMP: Yes, that is true and yet if you lime and inoculate, and make a proper preparation of seed bed and get the weeds out, you can grow alfalfa on rather poor soil. The condition I had in mind, the particular location I had in mind, where I have seen excellent orchards in alfalfa is on the loess soils along the Missouri river highlands; a very fertile soil that is well supplied with moisture and under those conditions alfalfa is about as good as cultivation. I think we ought to bear in mind pretty definitely about the loss of humus and organic matter, where we are cultivating and stirring the soil over a long period. As we get further south and west where the temperatures are higher and the season of cultivation longer, the loss increases.

MR. O'CONNOR: How about the soy beans?

PROFESSOR OSKAMP: They often make a good cover crop. I will tell you what I think about a cover crop. The idea seems to still be, in some cases, that there is some peculiar thing connected with some cover crop which makes it better than any other crop you might grow. Well I did some cover crop work several years ago. It wasn't what you might call exactly conclusive but what I learned from it was this: That it doesn't make so much difference as to what the cover crop is, as what growth the cover crop makes and the amount of organic matter which you will have to turn back to the soil. If the soy bean makes a good growth under your conditions so that there is plenty of vegetation, then the soy bean is a fine crop.

PROFESSOR OSKAMP: But this question often comes up: The soil is run down, the poorer the soil generally the harder it will be to grow legumes. The best thing I know under those conditions is to grow what you can. If you can grow rye, grow it: most anything which you can grow there, use that and turn it back and then maybe you can put in the legumes a little later. Legumes are certainly important because we are finding out all the time that nitrogen is the big factor. You all know how that thing has worked around. Why twenty years ago it was potash! Experiments show pretty definitely that nitrogen is most often the limiting factor. Now and then it may be something else but in a great majority of cases it is nitrogen.

The matter of improving the cover, improving your grass and thereby returning more organic matter to the soil: in that way acid phosphate may be useful and also lime to enable you to grow legumes. So far as fruit trees are concerned there is no evidence to show that they need lime directly or that they need phosphate or potash.

A MEMBER: You haven't said anything with reference to maintaining size and color. Color bothers all of us. I sat around three weeks and got three thousand bushels on the ground. If you can, tell us how to get color.

PROFESSOR OSKAMP: Nitrate of soda can be expected to increase the amount of fruit although in New York we found in some cases where we cultivated our orchards we could not find any benefit in the use of nitrate of soda. It is only when the orchards are in sod that we found benefits from nitrate of soda. Down here I am inclined to think many of you find a benefit where you are cultivating an orchard, but I would expect that. I don't think the question "does fertilization influence the amount of fruit" needs to be discussed very much. Where you need it certainly an application of nitrate of soda will give you an increase. Now as to the size of the fruit, there we have a sort of an indefinite thing, because under some conditions the nitrate of soda may increase the size and under others may decrease it. For instance I have seen nitrae of soda applied to Baldwin trees in New York growing in sod and it has sometimes resulted in smaller fruit. Now whenever you have one of those bumper crops you know the size will be small and under those conditions unless the trees have also been properly pruned and unless you have done thinning of the fruit you may reduce the size by applying nitrate of soda. Fertilizer must be used in connection with these other practices. Of course anything that tends to increase the vigor of the tree will tend to increase the size of the fruit yet nitrogen also has an effect on the set of the fruit.

A MEMBER: How are the blossoms affected on peach or apple trees, either one of them? What is the reason? Why does it do it? We would like to have it answered. I have wondered about it many a time and would like to know the reason.

PROFESSOR OSKAMP: I cannot tell you exactly, but I can tell you this—that during the blossoming period the tree seems to need quite a supply of nitrogen to grow these blossoms, if they are going to stick on. Without that supply of nitrogen a good many blossoms will fall that would otherwise stick on. We have analyzed those blossoms and it has been found that they contain a very considerable quantity of nitrogen and therefore the blossoming period is a very critical time in the life of the fruit tree.

A MEMBER: Any drain on the tree?

PROFESSOR OSKAMP: Yes, and if you apply this nitrate of soda in time so that it is down in the soil when the tree blossoms, experiments I think amply justify the statement that you can depend on an increased set of these blossoms on that tree where you apply the nitrate of soda.

A MEMBER: Just a few weeks before blossoming?

PROFESSOR OSKAMP: That is immaterial. In New York we say two weeks before blossoming. If you apply it the day before and a rain comes it would be just as good. We say two weeks because it might not rain right away. As soon as it rains the nitrogen is taken down in the soil, the thing is, it wants to be there as the trees begin to open.

MR. TOWSON: Have you strengthened the blossoms against frost?

PROFESSOR OSKAMP: Most certainly the vigorous tree is the tree that has been nitrated and will withstand the cold. The blossoms will withstand more cold than the weak trees that have not been nitrated. Now whether that would be a factor to meet your condition or situation, I don't know.

MR. NEWCOMER: Another question, in our county particularly with apples more so than peaches, is that nitrate—will it be injurious and cause the apples to drop. Does nitrate have any effect in that respect?

PROFESSOR OSKAMP: If it does I have never seen it.

MR. NEWCOMER: I have heard it. I have wondered if it would be a fact. They wouldn't use it because of that.

THE PRESIDENT: We will have to bring this to a close pretty shortly as Dr. Schrader has a few words to say.

A MEMBER: What is the comparative value of sulphate of ammonia?

PROFESSOR OSKAMP: In this section I understand you find the nitrate is apparently much better, but in New York we have noticed no particular difference in the comparative results in the field between nitrate of soda and sulphate of ammonia. We believe in New York you cannot go by the percentage of nitrogen in the fertilizer but pound for pound, that is if you need five pounds of nitrate of soda you will need five pounds of sulphate of ammonia.

MR. MOORE: Will you please discuss what makes color in fruit?

PROFESSOR OSKAMP: I cannot tell you what makes color in fruit. We know a few things about color but most of the things we don't know. I know sugar is necessary in the fruit, that is if there is low sugar content you don't have good color, apparently those two are very closely related. That depends on foliage, light conditions and temperature and the quality of the light may have something to do with it. Nitrate of soda has a tendency to keep fruit growing longer. I think we will agree that it does, when applied beyond a certain quantity. I think if you will apply enough to give a fair amount of vigor I don't think it will seriously reduce the color. We use it in New York. The peach growers use it to spread the picking season. Some have ten or twenty acres of peaches and found it quite a task to pick them all at once so they nitrate half the orchard and it means that half will be delayed several days and occasionally one may run into a season like we have this year and then it is bad because it is too late anyway. Some cultivate and fertilize both and do too much. Now I think it can be overdone. You will find that apples will color up right along if you can let them hang. I think we are all agreed that in a sod orchard you get better color. Experiments have demonstrated it, not a greater quantity of better colored fruit, but a higher percentage of color of the fruit you have. What we are after is a great quantity of highly colored fruit and fertilizer will give that greater quantity. (Applause.)

THE PRESIDENT: Thank you, Professor Oskamp.

Now the discussion of this subject will be led by Dr. Schrader.

DR. SCHRADER: You have all heard the excellent talk of Professor Oskamp and I do not know whether we have time for discussion of it or not. We have already had considerable discussion and it seems to me that Professor Oskamp has brought out several things of interest. If there are any specific questions I would like to hear them before I start to review the things that Professor Oskamp has brought out.

MR. MCLEAN: I would like to have Professor Oskamp explain whether it is insufficient requirement or quantity of nitrogen to reduce the soil requirements of the trees. I would like to have a little plainer explanation on that point.

DR. SCHRADER: I think I can assume Professor Oskamp's place in saying that various work on various sorts of plants have shown that where you increase the nutrient supply less water is actually needed to be taken up by the plant where you apply a sufficient amount of nutrition and water for the proper growth of the plant. I think he bases his conclusion on that. Any other questions?

In brief, I think Professor Oskamp has brought out—I think we have had a pretty thorough discussion of the subject while the talk was going on—but Professor Oskamp brought out that moisture, nitrates and humus are the important things to look out for under our practice and if we neglect to give proper attention to cover crops the humus will fall short of giving a proper requirement for tree growth and since we are associating tree growth with fruitfulness we have first to produce the tree growth necessary to proper fruit. Of course we are in this section at least not able to control moisture conditions. We are relying on the Lord to supply the moisture and of course our nitrates are a thing that we can supply ourselves.

MR. NEWCOMER: Do you think that an excessive rainy season, a rainy season early in the year will bring less color on the peach crop than if we had nitrate applied and not an excessive amount of rain like this year. I notice all our peach orchards had excessive rain. The majority had nitrate and some fertilizer and those that had a liberal application of nitrate and the excessive rain certainly didn't have the color this year we usually have. Would you think we should get

better color without so much rain or what would have been the condition?

DR. SCHRADER: Now Mr. Newcomer I think the same growth conditions with the rain plus your nitrate as you would have had without so much rain.

MR. NEWCOMER: I didn't think we would have it.

DR. SCHRADER: Were your peaches then covered by a mass of foliage or were they out in the open where the sun could get at them, and plenty of light?

MR. NFWCOMER: There was not an overabundance of foliage. It was a liberal foliage but it was not overabundant, I think.

DR. SDHRADER: And did you also pick your peaches earlier or at the same time that you picked them in previous seasons?

MR. NEWCOMER: We picked them later.

DR. SCHRADER: Later. This year over the country we had another peculiar condition. It seems to me in that we had much less than the normal amount of sunshine and we all know that sunshine is a big factor in the color of fruit. How much it is we are not prepared to measure. But it may be coupled up with the lack of color in your peaches this year together with the amount of crop that you got in effecting a shade over your peaches. Of course we also have this condition in a rainy season—with plenty of nitrate you are controlling them and in another season it takes a longer time to mature the crop. I think you have a few factors operating where you can not put your finger on one and say that's it. You can consider the thing theoretically and see these things are operative.

A MEMBER: Professor, if you had an excess of nitrate you might reduce the percentage of color. Is that due to shading?

DR. SCHRADER: The question has been raised, does nitrate reduce color—does excess nitrate reduce the color by its shading effect or by the actual effect of the nitrogen. I will let Professor Oskamp elaborate on that. (Laughter).

PROFESSOR OSKAMP: I am inclined to think it is a little of both, that is the reason I think we should go after pruning and thinning. Then it keeps our foliage greener and longer and the leaves, well that's good for the tree and good up until the time the fruit is ready to pick yet those leaves on there

after the fruit is really matured serve to shade and reduce the color, I think. That is if it were practical to do so. I think if we went in and stripped the leaves off our trees we would find a very material increase in the color all right. As an indication of that they tell me the big frost in the northwest this year killed the leaves immediately—after the frost came the fruit was on there for some time and it did remarkably well after the leaves were killed. Of course, it is not practical. Please do not misunderstand me. I am not suggesting that the leaves be taken off the trees or that the leaves are not the most important and if you took the leaves off prior to the maturity of the fruit the fruit would never mature properly without them, but after the fruit had reached that time of maturity I think the shading of those leaves does retard the color.

MR. TOWSON: There is one thing about it. We were trimmed this year on our peach orchard and we had at this particular orchard a very heavy hail storm on May 19, which took at least three-fourths of the peaches off and left nothing, so we very much thought we would be disappointed in the color. We expected them to come down but much to our surprise they had plenty of color, although way down close to the ground the color was spoiled. Now just in that connection I want to say that the man who needs no center limb in a peach tree is no peach grower. That is the first principle in peach growing. If he leaves the center limb in the peach tree he is a peach grower. (Laughter.)

DR. SCHRADER: Mr Towson I guess is conceding the general information that we open up peach trees at least in the later years, after the first initial crops, when we are trying to get as many peaches as we can.

MR. TOWSON: Professor Oskamp especially told about the width of the main limb and I asked him if that applied to peach trees—it just knocked me out and I think if they develop it too far they would break down, and now he says they are stronger if they stand out that way. (Laughter.) I said to the boys, "Cut those back; they will go back and break off."

DR. SCHRADER: I see Mr. Englar is impatient and if there are no further questions I will sit down. I did have a little bit to say about the color situation.

MR. ENGLAR: Well, give it to us!

DR. SCHRADER: I do not think I will give you any great remedy. We have several factors it seems to me on the color. First we know that light has a direct effect on the fruit. And second we know that if there are too many fruits on the tree there is not suffiicent leaf surface to furnish the sugar that Professor Oskamp told you about. There is a certain leaf area estimated for each individual apple, that is for the size of the apple, to be one hundred square inches and we need a certain leaf area there to develop color also in providing the sugar which controls the best of the pigment which is produced in the apple. Now we also have a temperature factor. That has been noted and scientific observation made that when we have a high abnormal temperature in a season certain varieties will not color up; also that a cool temperature at harvest time has been associated with the production of color. Now it may be that the cool temperature merely aids in transferring those sugars to the pigment in the apple. Now as to the effect of nitrogen on the color we have learned the effect of light there. We have nitrogen producing the shade as Professor Oskamp has given you and also on apple maturity we have to wait longer for the apples to color up and again in connection with apple maturity we have noted that when we have a slowly available nitrate such as ammonium sulphate late in the season your fruits are greener on the trees with ammonium sulphate than on trees which have received other nitrogen fertilizer which are not so slowly available.

MR. TOWSON: The temperature is borne out. Some years ago with us it was supposed to be influencing the weather. It was cool and we had fine sunlight and cool temperature and we had a wonderful color on fruit that year. The papers were full about it.

DR. SCHRADER: In 1924 we had a situation where we had abnormally high temperatures in the season and it was not until the temperature dropped that we got color and we had to wait for it. We had also another factor of low moisture causing many fruits to drop. Are we going to get color? If anybody has a universal panacea please give us a recipe. (Laughter.)

A MEMBER: I would like to find it.

DR. SCHRADER: It seems to me that Professor Oskamp in giving his talk on thinning the fruit gave you one good thing to produce color, that is the leaf area to furnish the sugars or the pigment or the old circle of the "House that Jack Built" furnishes the story.

How else can we influence color? Professor Oskamp has said that we should prune our trees by making cuts in the tree to admit light necessary for the production of sugar in the leaf. If we couple our thinning practice and nitrogen application with certain good productive growth I think we can satisfy at least our color requirements although we may not produce as high color as we do with a much lower production. (Applause.)

THE PRESIDENT: We have an important topic now to discuss. It's mighty important to me if I could tell a tree in the nursery. We get stuck every now and then in our nursery and we buy trees usually right at home at New Windsor but now and then we get something we did not buy and of course it is true everywhere but if Mr. Upshall will tell me when to be able to tell one in a nursery and be absolutely certain about it it will be a lesson to me. Mr. Upshall will you now tell us of the identification of fruit tree varieties in the nursery by means of foliage and wood characters? (Applause.)

THE IDENTIFICATION OF FRUIT TREE VARIETIES IN THE NURSERY BY MEANS OF FOLIAGE AND WOOD CHARACTERS

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In 1922 the Massachusetts Experiment Station published a bulletin written by Dr. Shaw and entitled "Leaf Characters of Apple Varieties." In this publication Dr. Shaw, showed that it was possible by leaf and other growth characters to positively pick out mixtures in salable apple stock in the nursery row. This finding was of the utmost importance to fruit growers and nurserymen. It meant that here was a

means by which the fruit grower might be assured of obtaining the variety or varieties which he had ordered. This problem of nursery stock coming untrue to name has always been a perplexing one to fruit growers and nurserymen alike.

The attention of the Massachusetts Fruit Growers' Society was brought to the possibilities of a practical application of this knowledge. Consequently the Society offered to certify at cost the salable apple stock of any nurseryman who was interested. Dr. Shaw and his men attach lead seals to the trees true-to-name in the nursery row. These seals bear the variety name on one side and the stamp of the Massachusetts Fruit Growers' Society on the other side. In 1921 and 1922 certification was done only in Massachusetts but since that time the work has been extended to various other states and has increased to a surprising extent.

Following the lead of the Massachusetts Fruit Growers' Society the sister organization in Ontario set aside in 1923 some funds for an investigation on the possibility of extending the knowledge to the other tree fruits. As a result the writer was appointed to the Staff of the Horticultural Experiment Station at Vineland Station and since that time has spent four summers on the identification of pear, plum, cherry and peach varieties in the nursery row.

After supporting the project for about a year the members of the Ontario Fruit Growers' Society were convinced that it was entirely possible to eliminate mixtures in tree fruits in the nursery row. Consequently their committee together with a committee from the nurseryman's association and Director Palmer of the Experiment Station approached and asked the Ontario Government to take up the work. The Government acceded to the request and during the past two years an inspection service has been offered to the Ontario nurserymen.

The Ontario inspection plan differs from the actual certification in that no lead seals are attached to the trees. Mixtures are broken down, or labelled correctly if known to be a recommended variety. The features of this service are that it is not compulsory and costs the nurseryman nothing. At the end of the season the nursery firm is given a certificate

which states that the examined trees are true-to-name "as they occur in the nursery row." With the idea of encouraging a reduction in the number of varieties being grown, the names of recommended varieties only appear on this certificate.

The question may arise as to the accuracy of the inspection for mixtures. In answer the writer wishes to say that in standard varieties a careful inspector can make a perfect clean-up on mixtures in the nursery row with all tree fruits except peaches. In the latter, one can be reasonably certain of eliminating 90% of the mixtures.

It can be seen that accidental mixtures may yet occur in digging or packing operations and neither does this roguing system guard against dishonesty. Good supervision will take care of the first of these considerations and trade competition will reduce trouble from the latter factor. One thing is certain, viz., this roguing system of inspection has met with favor from the Ontario nurserymen and their co-operation in future has been assured. It is of interest to note that in 1926 Dr. Shaw and his associates inspected about 400,000 nursery trees on the basis of the Ontario system, no lead seals being attached to the trees.

In 1923 and 1924 inspection was done in only an experimental way. In 1925 and 1926, however, practically all the salable stock of tree fruits was examined for mixtures. The numbers of each fruit by years are as follows:—

	Apples	*Pears*	*Plums*	*Cherries*	*Peaches*	*Total.*
1925	490,000	54,000	108,000	52,000	151,000	855,000
1926	373,000	66,000	66,000	55,000	97,000	657,000

It is quite apparent that there is the most need of inspection with peaches and sweet cherries. Not only have the nurserymen had difficulty in eradicating mixtures in these fruits but the uncertainty of correct variety naming has made the collection of bud sticks of anyone variety more or less of a gamble.

Now that it has been shown that elimination of mixtures in the nurseryrow is entirely possible nurserymen, fruit growers, and government authorities should be willing to co-operate in planning a satisfactory system of inspection.

THE PRESIDENT: I just want to make an announcement before the Professor goes any further—the Nominating Committee wants to have a meeting and asked me to read these names again, Mr. Cohill, Mr. Bryan, Mr. Towson, Mr. McCain and Mr. Carpenter. They would like to have you meet right away.

MR. HARRISON: I do not know what you have done in Ontario but I notice what the Massachusetts people are doing. It seems that they only inspect some varieties as apples. Most any man can tell that who knows anything about trees—Delicious, Jonathan, Stayman, Grimes and others—and varieties like that, but other varieties are a little difficult to tell. Those varieties that are a little difficult to tell they eliminate from the list. When you come down to pears, they have certified certain pears and plums they pick out two or three and one or two sweet cherries and leave out the sour. Now in this inspection work they are going to eliminate the peaches, which is just as important as apples, and if we are going to do the work why not make up a list and inspect all varieties instead of picking out a few and when as a matter of fact you come down the line you cannot get more than twenty per cent. of the order absolutely certified.

PROFESSOR UPSHALL: That is quite right. But you will agree that we should limit our inspection to only recommended and standard varieties. Yet, I do not think we should pick out only the easy ones. Yes, we will agree on that point. I think the reason the Massachusetts people have not gone into other varieties is that they have worked with apples only up until last year when they began to work with other fruits but I believe in the future they intend to extend the offer to other varieties. They are making a study of this now, based on the study reported in the Ontario bulletin and I expect they will offer certification on a greater list of varieties next year.

MR. HARRISON: You take the peaches, the Elbertas, there is no excuse for any man not identifying them.

PROFESSOR UPSHALL: Yet certain nurserymen have sent out Elbertas untrue-to-name.

MR. HARRISON: There is one other question, on this certification, they have put out a certificate. What financial responsibility is back of the Massachusetts certificate?

PROFESSOR UPSHALL: As protection against loss?

MR. HARRISON: Yes.

PROFESSOR UPSHALL: I can not answer that question but I believe their word has yet to be questioned by a nursery man.

MR. HARRISON: Well, they haven't been inspecting long enough yet.

PROFESSOR UPSHALL: Yes that's so but a good many nursery men know the varieties that they inspect.

MR. HARRISON: Yes, they have inspected the easy ones.

PROFESSOR UPSHALL: A number of the mixtures that they have listed include some that the nursery man himself knew were there, but they found a lot of mixtures the nursery man was surprised to see in his nursery row.

MR. HARRISON: Another point is the charge of five cents on certified trees. A fruit grower comes along and knows how conditions are and what happens?—you have a few certified trees and generally speaking they will buy the trees that are not certified.

PROFESSOR UPSHALL: Yes, that is so, but I can not speak for the Massachusetts people in their system of inspection and I am not here to defend it.

MR. HARRISON: No, I am just asking for a point of information.

PROFESSOR UPSHALL: We in Ontario have not seen fit to adopt the Massachusetts system. We think our system will work satisfactorily under our conditions.

MR. HARRISON: When you cut buds from nursery rows there is not a man in the world who can keep them straight.

PROFESSOR UPSHALL: And yet I raise a question here because I have found the most difficulty, the greatest percentage of mixtures occurring where the bud sticks have been taken off bearing trees.

MR. HARRISON: The nursery men did not cut them themselves.

PROFESSOR UPSHALL: Yes, in some cases. In the exchange of buds sticks there is a great problem.

MR. NEWCOMER: Is it harder to tell the white varieties than it is the yellow?

PROFESSOR UPSHALL: I would say not a bit harder, but there are difficulties in both.

MR. NEWCOMER: I bought some trees a few years ago and when I opened the box some of them were marked differently. I discovered they were not what I wanted, although I planted them. But I took them up before they were in the ground two weeks and told the salesman to send them back.

PROFESSOR UPSHALL: That is the proper thing to do because they may have made a slip or a deliberate substitution. They may have been short on the other variety.

THE PRESIDENT: We will have to bring this discussion to a close. Our Secretary tells me that a neighbor of his has a group of trees and had them planted five years before he discovered they were not what he bought. He later got what he wanted but it is a calamity if a fellow plants a tree and waits six or seven years and finds that it is not what he wanted to buy. This is an interesting subject and if a fellow could absolutely know he was getting what he bought without waiting six or seven years it would be a satisfaction. We accept it but sometimes it turns out the other way and I have a neighbor who lives opposite me and he planted a Roman Beauty right back of my stable and it is just a scab and no one can name it and it is twelve years old and no good at all. These are serious questions and it is mighty interesting to know we are getting what we bought.

Now we have another very interesting topic this morning on the subject of the requirements of foreign markets for apples. Some of us thought they wanted big apples and maybe they don't. We have a gentleman here who will tell us what the foreign markets want. (Applause.)

REQUIREMENTS OF FOREIGN MARKETS FOR APPLES

By MR. H. W. SAMSON,

United States Department of Agriculture.

Before approaching the subject of the foreign market requirements for American apples let me say that the U. S. Bureau of Agricultural Economics maintains a fruit specialist

in Europe who devotes his whole time to the study of marketing problems. For the past two years, Mr. Edwin Smith has acted in this capacity. Mr. Smith brought to this position a broad knowledge of American fruit marketing problems having carried on research work in the Department in the field of physical handling, storage and transportation, resigning to serve the fruit industry of the Pacific Northwest in various capacities and later entering the export business.

During the period of his foreign assignment he has made available to American growers much information which has appeared from time to time in the publications of the Department and in the trade press. I sincerely wish that Mr. Smith were here today to present at first hand his observations in the United Kingdom and the Northern Continental markets and to present personally his suggestions for the improvement of our foreign trade. What I shall say, however, is taken directly from his official reports.

The apple growers of Maryland and contiguous states should realize the strategic position which they occupy with respect to foreign markets and give this outlet for their product the attention it deserves. Taking into consideration the geographical location, the varieties and the general quality of the fruit, it seems inevitable that these markets, important as they are today, are destined to become even more so in the future. There are, however, a number of specific questions which should receive more careful attention from this Society. The first relates to the necessity of taking some steps to regulate the flow of the product into the markets with a view to avoiding the alternate gluts and famines which have been disturbing to exporters in the past. It would appear that there should be some sort of an organization of exporters to regulate consignments better.

It seems certain that growers are losing heavily in export markets by not having the existing distributing agencies more closely knit together so that the common knowledge may be used to influence marketing along organized lines. At present many individual exporters have a fairly clear vision of what is going to happen to foreign markets when week after week shipments from New York exceed certain limits. They also recognize that certain European markets can clear heavy sup-

plies without a serious disarrangement of the general market level while other markets are thrown into a panic by excessive supplies. In home markets many individual exporters utilize cold storage facilities as one remedy for excessively depressed markets, though they have made other isolated attempts to break down the prejudice against cold storage abroad. These are matters which call for study and action in a collective manner.

Basic retail prices in Great Britain for such varieties as York Imperial and Ben Davis are around 6 to 8c. per lb. These are considered reasonable figures and are considerably below the usual price for boxed apples when they are at their lowest levels in the hands of the wholesalers. Retailers can and do sell at these prices when York Imperial and Ben Davis move on the auction at from 21/-to 22/- per bbl. (about $2.90 to $3.40 f. o. b. Winchester).

When these varieties overload the market and sell at from 15 to 18/- per barrel (about $1.75 to $2.25 f. o. b. Winchester) and even lower as was the case during the month of November there is no appreciable change in the retail prices. If some of the excessive supplies were held off the markets in Great Britain the price of York Imperials would spring back to from 20 to 21/- immediately and the total consumption would be practically the same at present prices. Most of the large distributors abroad agree to this statement.

If the keeping quality of the fruit which is exported is so poor that it must be rushed over during a few weeks in October and November regardless of supplies and market prices matters cannot be improved very much but if York Imperial, Ben Davis and Winesaps can be carried through to January and February then it would seem that American growers are disposing of their fruit at a loss of from 50c. to $1.50 per barrel.

There are certain markets in which prices fluctuate widely from week to week. If there seems to be a scarcity or a prospective scarcity, prices soar out of reason. Contrariwise prices fall to unbelievably low levels if supplies on hand are heavy.

Such market conditions affect the general level for the country as a whole. Obviously consignments to such ports

need to be handled with great skill and as a rule consignments should be if anything somewhat under the requirements.

During the past season the demands on the steamship companies have been such that space has been short for many ports in Great Britain and without doubt consignments have been shifted from their original destinations to points for which space could be secured regardless of consequences. This has cost the industry a fortune. A little cold common sense in a council of exporters would undoubtedly have altered the policy of many individual exporters during this period. It is easy to believe that the better judgment of the majority would have been asserted more forcibly in restricting shipments and in diverting certain lots to cold storage if the program was backed up by the other exporters or if a greater degree of responsibility were to be attached to their activities.

We have no cut and dried program but it would seem that an organization of exporters might, by the exchange of car information easily influence the weekly exportations and shipments from orchard districts so that plans for the curtailing or increasing of consignments could be taken perhaps a week earlier than is the case at present. Such a league could see that growers were not misinformed by unscrupulous agents soliciting consignments. Such a plan should be of great advantage to the conscientious operator and should increase his business.

The Department is giving serious consideration to this whole proposition and will be glad to co-operate with members of this Society in evolving some practical plan.

But there are other problems of first importance which are far less complex. I refer particularly to two outstanding causes of deterioration and loss during the past shipping season. You have all heard of apples arriving in the export markets "cooked" or "Wasted." These terms refer to overripeness, general breakdown and excessive decay. Scores of such lots of apples appear at the auction sales in more or less the same leaky, mushy state and consequently the grower takes a loss of $2.00 to $3.00 a barrel. Most of the losses from cooked and wasted apples in European markets can be prevented by lower temperatures in transit.

In Eastern apple sections refrigeration is usually thought of only in connection with ocean transportation. Far too little attention is given to the fruit in the orchards and at the ports and it is entirely probable that most if not all of these lots which show such serious deterioration were shipped in box cars.

The time in transit from a Virginia or Maryland orchard to one of the European markets is possibly slightly longer than the ordinary running time from Washington State to New York City and much longer than from the Pacific coast to most of the middlewestern markets. Pacific coast shippers tried box car shipments during a period of car shortage a few years ago and the practice nearly put them out of business. Now in addition to fully iced refrigerator cars they are turning to precooling and a shipper in that region would consider he was flying in the face of Providence if he used box cars when he could get refrigerators. Growers in this part of the country must realize that their fruit is not in a class by itself when it comes to withstanding heat.

But there must be co-operation along this line if the benefits of refrigeration are to be secured. A carload of York Imperials arriving in New York under ice and plunged into a hold with several thousands of other barrels all brought from box cars riding under the September sun has but little better chance than the rest. This Horticultural Society should start a campaign to have the apples at a lower temperature when placed on board ship even though most of the fruit must be shipped "ordinary stowage." This means that apples shipped during the warm periods of September and early October must be moved to seaboard in iced cars.

One other cause of serious loss is the use of poor or improperly coopered barrels. One American cargo of 29,000 barrels examined by Mr. Smith showed over three carloads with the heads out or which required recoopering. A Nova Scotia ship at the same docks discharging 22,000 barrels had but *two* which required attention.

In this section much of the cooperage stock is made from dead chestnut trees. Such trees may be perfectly sound but unfortunately there is not always proper factory inspection

and thousands of barrels are arriving overseas showing staves full of pin holes ready to break upon the least provocation. Furthermore the quarter hoops slip or come off. A grower shipping in export should realize the advantage of using double quarter hoops, The steel hoop has also shown up well in every respect. Chime hoops should be driven down flush with the ends of the staves. Many are not. These when rubbed against the hatch-combing or quay deck are pushed up, broken in the slings with the result that out comes the head.

Thicker and longer linings are frequently needed.

The standard practice of nailing chime hoops should be adopted. From 8 to 10, 1¾ inch nails should be used. No more, no less. Many barrels arrive in European markets having only 5 or 6 thin 1 inch nails in the head while others have 30 or 40.

Now a word as to varieties. The best varieties for shipment in barrels are Bonum, Jonathan, York Imperial, Ben Davis, Baldwin, Rome Beauty, Rhode Island Greening, Albemarle Pippin and Golden Russet.

Gravenstein, Maiden Blush, King David, Wealthy and Duchess do well during certain seasons but at present too many are shipped during the September rush which are not capable of withstanding the excess heat of common stowage and therefore arrive in bad state. Jonathan almost comes in this class. The King David is all right if refrigerated all the way.

The Grimes has possibilities in the export market but at present shipped without refrigeration in common stowage it has arrived in Europe in bad condition and is looked upon as an undependable apple. The Delicious is in somewhat the same position and is abused in transit by too much heat. The Stayman is very undependable in export markets owing to the variation in color and its tendency to go stale both in appearance and quality.

I must not close without saying a word as to grading. Grading is just as important in export markets as it is at home. Many growers do not realize this because the fruit moves through the auction and is displayed and sold on its appear-

ance. While this is true it must be remembered that after the auction the fruit must move through approximately the same channels of distribution as it does in our own cities. Good honest grading with grade marks stenciled on the barrels will pay just as well in export markets as at home. During the past season the trouble has been that too many barrels stenciled U. S. No. 1 or A grade have consisted of borderline fruit, while other barrels containing very good fruit have been shipped with no grade marks at all. Last year much was said about the serious losses in foreign markets due to slack barrels. During the past season there has been a notable attempt on the part of exporters to remedy this situation but all too frequently instead of using better made barrels and securing a tight pack by properly racking the fruit, packers have resorted to overpressing which has resulted in more slack barrels instead of fewer. Our inspectors in the receiving markets have found many lots of fruit bruised and crushed to the very center of the barrel, a situation which is not to be tolerated and one in which the cure is worse than the disease.

I feel sure that this information which I am relaying to you from Mr. Smith will receive careful consideration by the members of your Society interested in the export trade. The suggestions are made by a man thoroughly familiar with your conditions who is devoting his whole time to your problems. If the Society desires to follow up any of the recommendations it may rely upon the whole-hearted co-operation of our Bureau.

A MEMBER: Do steamship companies make any provision on board ship?

MR. SAMSON: I cannot tell you about conditions on board ship, but unquestionably they give some attention to refrigeration, but altogether they are inadequate. Some of those points are what a group of exporters can do. I do not want to get away from your line of thought but the trend is now everybody for himself. If you go to a steamship company, any one of you, you can not get anything out of them because it means nothing to them, but if there was a solid front on the part of the American industry we could get the service we do not get now.

THE PRESIDENT: Do you feel it is a paying proposition to ice the cars from the shipping point clear through and whether it will always pay—of the iced car having an advantage over not having them iced?

MR. SAMSON: Smith says if you put an iced car in the ship's hold with several thousand boxes of hot fruit, the refrigeration in transit to the port does little good. I will answer your question. No, but I will also add that I think that something should be done by growers and exporters so that they can get a large volume of fruit during that period of time which is all refrigerated to the seaboard.

THE PRESIDENT: Did you have much fruit arriving in New York in box cars this fall?

MR. SAMSON: I was not in New York and cannot answer that. The point is the fruit was not shipped under refrigeration and as a matter of fact a refrigerated car that is not iced is no better than a box car. Maybe not as good. A lot of people have the idea there is a tremendous draught through the refrigerated car but our experience shows that a lot of times they won't turn one of the wind gauges.

THE PRESIDENT: We had box cars—there were three on our siding and they wanted us to load to them and I said we could not do that unless the others were going to load box cars. That if the others were going to do it we would do it. I wanted to know if they were going to unload the cars and they said no. So they took the box cars away and later came back with the refrigerated cars.

A MEMBER: Do you think it a paying proposition to have all the cars iced?

MR. SAMSON: I think in September or October the fruit should travel under ice because it stands to reason that the fruit absolutely goes to pieces from the Pacific Coast to the Middle West and it is a longer trip and a harder trip to Britain and during that time of the year it will not stand it. Now the proof of the pudding is in the eating and for the last two years Mr. Smith has called attention to any quantity of stuff coming over there and they use the expression that it is just a rotten mess. If we can not get out fruit any better we are better off to leave it home. There are some other rea-

sons why these fruits do not get over in good condition and I regret that I can not answer questions as I would like to. You men have got me in a foreign field as I am just sort of a messenger boy here and presenting what I have learned incidentally in charge of this work on this side.

MR. ENGLAR: That seems to be the big question over there —slack barrels and almost every shipment gets into difficulty. There would be no harm if we pack the barrels properly. We do not want the fruit to get all bruised up and yet we want them tight. If there is some difficulty about the slack barrels I am wondering how you will get a barrel over there that is all right.

MR. SAMSON: I think it is inevitable that some barrels will be slack when they get there but the discount that they pay for slack barrels runs from twenty-five cents to one dollar and twenty-five cents. It does not make much difference in the quarter cut but if a dollar it hurts you. I know a lot of these barrels are slack for the reason that the hoops have slipped and they have not been properly nailed. Those are the points I want to make. The Nova Scotia people use double quarter hoops. At least we can get hoops and see that they are properly nailed. Those are just suggestions. Last year we had a lot to say about slack barrels in an effort to remedy the slack barrels to make the growers over the country save their fruit.

MR. ENGLAR: What kind of barrels would you use?

MR. SAMSON: I saw Mr. Carpenter here a few moments ago—

A MEMBER: What we use is the Nova Scotia barrel.

A MEMBER: We use elm.

MR. SAMSON: I really have given you all I can and it represents the work of our representative over there. (Applause.)

THE PRESIDENT: Any other questions?

Our good friend has something in his heart he wants to say and I think we ought to allow him to say it.

MR. HOOPES: Mr. Chairman and fellow members, I began attending the meetings of the Society about 1902 I think and at that time at least fifty per cent. of the interest lay in the

show of fruit and flowers. It was brought particularly to my attention by its mention in Senator Harrison's address, especially, and it seemed to me of great educational value not only to the members but to the city people as well and for my part I would like to see that made a feature of our annual exhibition.

THE PRESIDENT: I was just wondering if the Resolutions Committee has anything on that or whether we want to take some action. That has been mentioned to me a number of times since yesterday morning about the matter of having an exhibit in connection with our horticultural meeting. We used to have quite a large exhibit at the Armory although it meant a lot of work and expense and it was a big display. I am interested in an exhibit and I think it would be a good thing to have, but I doubt if we could get an exhibit as large as we used to have at the Armory in connection with our annual meeting.

MR. BRYAN: If we have an exhibit I think it should be a large one. It is not to please ourselves. The main proposition is to advertise Maryland fruit and get the people of Baltimore and other sections to know that we produce good fruit.

THE PRESIDENT: Anyone interested in this matter?

MR BRYAN: I think we should consider it at this or the next meeting.

THE PRESIDENT: Do you want to offer a resolution?

MR. ALLEN: I want to say as the Resolutions Committee chairman there is still time to consider it.

MR. O'CONNER: I have visited several States—Massachusetts for one and there was given a display of the fruit they had. We asked how they could do it and they gave a demonstration. A few years ago we had a show in New York. Did not Maryland show up better than any other state in our work? I traveled from Washington up there and was well repaid by getting to that one meeting. The experience was better for me and I know it is better to all of us. I think it is one of the big drawing cards. When the Show is over they say now see here what will we do with this fruit, and it is given to the hospitals, and it helps us out at periods to advertise.

MR. WALKER: Could the committee look into the advisability of an exhibit at our next annual meeting? You are talking about advertising fruits, apples for instance and it seems to me we should consider the fruit of Maryland. It would be quite an advertisement to show the people the apples and other fruits and I believe it would do a great deal of good. Senator Harrison especially spoke of his experiences. I think it would be a good thing. I am more interested in peaches than apples but they are liable to talk more about it if we put on a Show.

MR. ALLEN: While talking about the exhibit let's not forget the commercial exhibit. I know several horticultural companies that would attend and help and that always have a nice exhibit of the different types of material, cultivation of orchards and whatever is new, and you get a chance to see it. I think from a standpoint of advertising apples a fruit exhibit is all right. I am in favor of it, and I am also in favor of a commercial exhibit and I am more interested in it from the standpoint of selling the apples because I get more out of it, and if it is in order I will make a motion that we request the Executive Committee to look into this matter very carefully to see if something can be done along that line.

A MEMBER: I second that motion.

THE PRESIDENT: It seems to me there are a few men in here who have had experience with our exhibits in the Armory and I would like to have an expression from some one who has been on the job as to why they quit the job.

MR. BOMBERGER: I think the main reason for discontinuing the Show was that we could no longer get the Armory. The war came along and it was used by the government details, that was the reason for discontinuing during the war. Of course, there has been no movement since then.

THE PRESIDENT: I was interested to know why it was dropped.

MR. BOMBERGER: It is a big job to put on a Show. I will say that in going out of the State I have heard of many sources wondering recently why the old Maryland Show in its original state could not be revived. They said it was the biggest thing that Maryland could put on. You would ad-

vertise and put Maryland on the map. The reason for discontinuance I think was wholly because we could not get the Armory.

THE PRESIDENT: We have a motion, made and seconded. Are there any remarks? That the Executive Committee look into the advisability of putting on a Show in connection with the horticultural meeting, that is a display of apple and orchard supplies and machinery.

MR. O'CONNOR: Is that the motion? I second it.

MR. ALLEN: That does not mean apples alone. It includes apples and everything else.

THE PRESIDENT: Surely.

All in favor of this motion will please stand.

(The motion was adopted.)

Is the Resolutions Committee ready to report? It looks like we have a report now.

MR. ALLEN: I think from the nature of the resolutions we propose that it would be better to act on them separately. If they meet with approval and no special objection to the resolutions they can be moved and voted on very quickly. We only have five.

THE PRESIDENT: Let us be quiet so we can hear the resolutions.

MR. ALLEN: The first resolution we have is:

WHEREAS, we feel that there is a great need for something that will stimulate the demand for and consumption of apples which will be reflected in the selling price especially in years of large crops, and

WHEREAS, there has been organized a corporation, namely "Apples for Health, Inc.," which has as its purpose the advertising of apples in a national way to the end that the per capita consumption price to the producer will be increased,

Be It Resolved, That the Maryland Horticultural Society go on record as heartily endorsing this movement and that the Society urges its members to support it not only by taking out an annual membership at $2.00 but that they also contribute to the advertising fund the designated amount per package.

A MEMBER: I move its adoption.

A MEMBER: I second it.

(Whereupon the motion was duly put and carried.)

MR. ALLEN: Now the second resolution is as follows:

WHEREAS, we believe there is already in cultivation enough land to produce a surplus of all the crops grown in this country, and

WHEREAS, we believe further that there is enough more land that can easily be brought into cultivation when there is need for it to support a very largely increased population, and

WHEREAS, we feel that it is unfair to taxpayers, producers, and settlers to be continually opening up new irrigation and reclamation projects, and extending old projects, therefore,

Be It Resolved, That we the Members of the Maryland State Horticultural Society protest strongly against the continued expenditure of large sums of money for opening new and extending old reclamation projects, and

Be It Further Resolved, That a copy of this resolution be sent to the two United States Senators for Maryland, and to all the members of the House of Representatives from this State.

THE PRESIDENT: Gentlemen, you have heard the resolution, what is your pleasure.

A MEMBER: I move we accept it.

A MEMBER: I second the motion.

(The motion was thereupon put and adopted.)

MR. ALLEN: Now the third resolution is in two parts. I will read them.

WHEREAS, we feel that the publication and broadcasting of estimates indicating tremendous crops of apples, peaches and other crops has a depressing effect on the marketing of these crops, and

WHEREAS, we believe these estimates are used to a far greater extent in forcing down the prices to the producers than they are to securing moderate priced apples for the consumer therefore

Be It Resolved, That this Society urges its members to be more conservative when submitting estimates to the various agencies collecting this information, and to make ample allowances for "culls" of all kinds including drops, injuries from insects, diseases, stem punctures, bruises, frost, lack of

color, bad weather and insufficient labor and storage losses so that our figures will represent more nearly what we will actually pack and sell rather than what we hope to have, and

Be It Further Resolved, That we request the government and State Bureaus that collect this information to make more ample allowances in their estimates for the factors mentioned above, to the end that the ever present quantities of unmarketed fruit will not help depress the price of the marketable fruit.

MR. ALLEN: That much of it the Resolutions Committee recommends. Now here's another part of it that we submit without recommendation.

And Be It Further Resolved, That these same agencies look very closely into the advisability of delaying for at least one month the time of getting out their first estimates.

THE PRESIDENT: You have heard the resolution. Do you wish to vote on the first part of the resolution? We will vote on the first part then.

A MEMBER: I move we adopt it.

A MEMBER: I second that motion.

(Whereupon the first part of the resolution having been stated was adopted.)

THE PRESIDENT: Now as to the second part, what shall we do with that part of the resolution. Shall we adopt this as a Society—as a recommendation from the Society?

MR. ALLEN: I might say in talking this over the Committee felt that even though all this information was issued and it did have a depressing effect on the market, yet we could not hope to suppress it. It will come out and we can not keep it down. The suggestion was made by one or two people that it might help to control this broadcasting of the information.

THE PRESIDENT: How can you control it?

MR. BRYAN: The files in their office do not depend so much on the government reports as they do upon their own source of information. The buyers of apples in this country are pretty well posted as to what the crop is and I think the buyer's information is usually more accurate than the government information. I think it would be a bad thing for us to go on record in any resolution which might appear as though

we were trying to hide things. It is all right to ask that the estimates be represented by more accurate and fair information, but to pass a resolution which even incidentally might be taken to be an attempt to suppress information, especially if we can not suppress that information, seems entirely undesirable.

THE PRESIDENT: So that you move to eliminate this part of the resolution.

MR. BRYAN: I move that it be rejected.

A MEMBER: I second that.

(The motion to reject the second part of the resolution was adopted.)

MR. ALLEN: We have a couple of other resolutions that do not affect us as fruit growers but they are more or less generally influencing and it will not take but a couple of minutes to read them over. One is,

WHEREAS, We understand that there is to be presented to the legislature of Maryland a bill giving all traffic on main highways the right of way over all traffic approaching the main highway from whatever direction, and

WHEREAS, We believe this measure would be a safeguard to travel for all concerned, therefore,

Be It Resolved, That the Maryland State Horticultural Society go on record as favoring this bill, and

Be It Further Resolved, That we send a copy of this resolution to all the Senators and Members of the Legislature of this State.

THE PRESIDENT: Did you hear the resolution?

MR. ALLEN: I may say that this resolution was passed by the Maryland State Grange.

THE PRESIDENT: It was suggested, I think, by the Automobile Commissioner. You heard the resolution, what have you to say about it?

A MEMBER: I move its adoption.

A MEMBER: I will second it.

THE PRESIDENT: From the way it is worded we do not know just what it means. It seems to me if we knew specifically what it means we might be better able to make up our minds.

MR. BRYAN: I do not want to appear to be against anything, but I think you should think about this. The rule on the highways everywhere, whether a ship, a car, or pedestrian or whatever it may be, is that the one on the right has the right of way. It is a necessary rule especially in New York and other big cities. The reverse is impractical. The practical difficulty does not occur with the main artery of traffic when a lot of lanes come into it, but inevitably there are a lot of cases wwhere there may be a difference of opinion as to which is the main artery. When you have roads of the same kind crossing each other there is always a chance for difference of opinion. Moreover when are you going to leave the main road in the counties and get into the city where the rule is that traffic on the right has the right of way? There is no sign to show you always when you reach the cities. By the laws on the Belair road until you get to the city line you have the right of way, when you get to the city you have not the right of way. There is room for confusion and I think this may be productive of trouble.

MR. ALLEN: I want to say the Committee submitted this without recommendation and inasmuch as there seems to be divided opinion on it, I make a motion that we lay it on the table.

THE PRESIDENT: I think we had a motion and it was seconded. We will have to get rid of that.

A MEMBER: I withdraw my second.

THE PRESIDENT: The motion and the second have been withdrawn. Now your motion, Mr. Allen.

MR. ALLEN: My motion is that we lay it on the table.

A MEMBER: I second that.

(The motion was put and carried.)

MR. FUNK: It seems to me this looks like a step in the right direction to pass this resolution. I have traveled in one of the States where this has been the practice and it gives you a feeling of satisfaction to know when you are on the main highway you do not have to keep watching out for every cross road, lane and so forth on the highway. I believe this is going to come, if not this year next year and I am in favor of it.

THE PRESIDENT: Oh, I think they will pass it.

A MEMBER: In our district it is a sort of unwritten law. We do not consider at all coming out of a lane or dirt highway until we get a chance to get on the highway.

THE PRESIDENT: The idea of the suggestion in the beginning was to speed up traffic and I feel that they will make it a law, yet I think a lot of people will get killed at the job for a while at least.

MR. ALLEN: Let me explain this. I think personally I am in favor of it but I have not thought of it much—I have not made up my mind, so there seems to be a difference of opinion and I think we should concentrate our energies on the Horticultural business.

THE PRESIDENT: You have heard the motion. Any further remarks.

(The question was called for.)

I hear none and we will lay it on the table.

MR. ALLEN: Now the next resolution has to do with liability insurance for vehicle operators.

WHEREAS, The greatly increased motor vehicle traffic in this country has brought with it an alarming increase in motor vehicle accidents, and

WHEREAS, We believe all motor vehicle operators should have some redress against irresponsible and reckless drivers, therefore

Be It Resolved, That we favor a State law providing for Compulsory Liability Insurance to the amount of $1,000 for all automobile operators.

Be It Further Resolved, That a copy of this resolution be sent to all members of the Maryland Legislature, Senators and Delegates.

A MEMBER: I move the adoption of that.

A MEMBER: I second it.

A MEMBER: No matter what you say you will have a harder time getting that through the Legislature than the other.

THE PRESIDENT: We have the motion and second to adopt this resolution. Looks like a couple or more want to make it the other way. All in favor of adopting this resolution as read please stand.

(The delegates stood but in the minority.)

THE PRESIDENT: The motion is to adopt the resolution to require one thousand dollars insurance for every operator of an automobile.

MR. VIERHELLER: Not the operator or the chauffeur. It should be every machine.

MR. ALLEN: I will change the motion in that respect.

MR. BRYAN: The trouble is that if you are injured nine times out of ten it is by an irresponsible man and you can not collect from him. Very often he doesn't even own the car that he was driving. It puts a premium on the irresponsible man that we all have to pay for. If there is one thing that will help motor traffic it is this thing. New York has been forced to have such a law and Massachusetts is taking action in that direction.

A MEMBER: Will you please read that part again?

THE PRESIDENT: Some one has asked that this be read again.

MR. ALLEN: I will read it putting in the amendment which I have accepted.

Be It Resolved, That we favor a State law providing for Compulsory Liability Insurance to the amount of $1,000 for every motor vehicle.

THE PRESIDENT: You have heard the motion. You understand it now. Do you want to vote again? If you think you understand it better let's vote on it.

(The motion was duly put and carried.)

MR. ALLEN: I won't take up much more of your time, but we still have another one.

L

WHEREAS, There are now pending in the United States Congress certain measures which if enacted into law will allow a considerable portion of our food stuffs to be adulterated with corn syrup and corn sugar without a declaration of contents on the label, and

WHEREAS, Each and every one should have the unqualified right to know what we eat and what is being fed to our children,

Be it Therefore Resolved, By the Maryland State Horticultural Society in convention assembled this fifth day of Janu-

ary, 1927, that any commodity that is sold or offered for sale shall contain the label stating exactly what it is, and

Be It Further Resolved, That a copy of this resolution shall be presented to each Senator and to each Congressional Representative from Maryland and that they shall be requested to use all of their power and their influence to prevent the passage of these bills.

MR. ALLEN: The Committee submits that without recommendation. We did not feel that we had enough information to act definitely.

MR. FUNK: Your Food and Drugs Act covers that?

MR. ALLEN: No, they said the bills pending would nullify the Food and Drugs Act to some extent.

MR. BRYAN: I think it is a little off our beat.

THE PRESIDENT: I think so too.

You have heard the recommendation. What have you to say?

A MEMBER: I move it be laid on the table.

A MEMBER: I second it.

(The motion to lay on the table was put and carried.)

THE PRESIDENT: Is the Nominating Committee ready to report?

MR. BRYAN: Mr. Cohill, Chairman of the Nominating Committee had to leave early, and he asked me if I would read the results of that committee's deliberations. The committee nominates as follows: For President—G. Hale Harrison of Berlin. For Vice-President—E. D. McCain of Frederick. For Secretary-Treasurer—G. Rust Canby, of Silver Springs. For Members of the Executive Committee—J. Walter Englar of New Windsor, G. L. S. Carpenter of Hancock, R. R. Walker of Easton, J. P. Burdette of Newburg, Andrew Cohill of Hancock, and Frank Hanson of Ellicott City.

THE PRESIDENT: Do we want to adopt this report?

(A motion to adopt was moved, seconded and carried.)

MR. BRYAN: I move that the secretary cast an unanimous ballot for each of these men.

THE PRESIDENT: All in favor of this motion will stand. (The Delegates stood, and the ticket was adopted.)

Those are your officers for another year. We stand adjourned until 7:30 this evening, and please come to this room at 7:30 as we will have a splendid program again tonight.

(Whereupon, at 12.35 P. M., the session was adjourned.)

FIFTH SESSION

Wednesday Evening, January 5, 1927

The evening session of the Maryland State Horticultural Society was held at 7:30 o'clock, January 5, 1927, in Odd Fellows' Hall, Baltimore, Maryland.

THE PRESIDENT, MR. ENGLAR: I am a great fellow to start on time. If a fellow isn't here it's his hard luck. We have a very interesting subject here, and, I am sure, an interesting fellow to discuss it. I heard him discuss this subject last February and I know it is interesting. To me it was a brand new one. I had not heard his arguments, but it was a brand new thing to me and I believe it will be to some of you fellows. It was mighty interesting. Dr. Magness is going to tell us when it is proper to pick apples so they will have better keeping qualities and I think this matter is worth a great deal to us. Dr. Magness, will you tell these fellows how they should pick apples? (Applause)

DETERMINING THE PROPER TIME TO PICK FRUIT AND FACTORS IN INFLUENCING ITS KEEPING IN STORAGE

By DR. J. R. MAGNESS

U. S. Department of Agriculture,

Washington, D. C.

Mr. Chairman and Members of the Horticultural Society:

I know some of you have quite a way to drive after this program is over, and it was snowing a little when I came in, so I will try to make my part short and to the point. We have been doing a good deal of work during the past several years, trying to determine as accurately as possible the proper time to pick apples in order to secure the best possible storage condition for the fruit.

We want to determine, first, the factors which cause the fruit to ripen early some seasons and later other season, and, second, to determine the best methods for judging when the fruit is ready to pick.

We have found several changes in the fruit to be particularly valuable as indices of when the fruit is ready to pick. No one test is suitable for all varieties and all conditions. The best test to use in determining the time of picking will vary somewhat with each variety considered. The best tests for determining picking time may be summarized as follows:

1. The way the fruit is holding on the tree. With most varieties the loosening of the fruit on the tree is one of the best indications of when it is in proper picking condition.

2. The color of the fruit. The amount of red color on the fruit is a very vital consideration from the marketing point of view but a more accurate indication of the real maturity of the fruit is the ground color or the amount of yellowing in the unblushed portions. We have developed a color chart which we have used in bulletins on time of picking apples. These contain four different shades of yellow and green. By means of this chart we have been able to follow accurately the exact color change in the fruit. The ground color, particularly of most red varieties, should be quite yellow at the time the fruit is in proper picking condition.

3. Another test which offers one of the best methods of determining picking time, at least with early ripening varieties, is the firmness of the flesh. The flesh of apples softens, as you know, as they approach picking condition on the tree and also after the fruit is picked and while being held in storage. In order to follow the softening of the fruit this instrument has been developed (exhibits instrument) which measures mechanically the firmnees of the flesh of the fruit. The plunger point is placed against the flesh of the fruit and pressure is applied until the plunger penetrates the fruit. This pushes the collar up and makes a contact. When the light flashes you read on the scale the number of pounds pressure required to force the plunger into the fruit.

This test has proved particularly valuable with varieties that are likely to get overripe on the tree. Varieties such as Jonathan or Stayman Winesap, particularly when grown with

a long season such as prevails in the South or the Pacific Northwest, may get so ripe on the tree that they will breakdown in storage. Delicious also may get so ripe on the tree that it becomes overripe and mealy in storage very quickly. There is oftentimes a temptation to leave these varieties on too long in order to secure high color. We have found the test of the firmness of the flesh to be one of the most satisfactory ways of determining when these varieties are getting so ripe that there is danger of them not holding well in storage.

The exact time for picking apples will vary somewhat depending upon how the fruit is to be handled in storage—whether you expect to put it in cold storage or air-cooled storage. The storage characteristics of the different varieties also must be considered in determining the best time of picking.

All varieties soften and ripen faster after they are picked and while being held at the packing house or in air-cooled storage than while on the tree. Consequently, relatively late picking with varieties that are to be held in common or air-cooled storage will usually give firmer fruit than will early picking. For example, York Imperial picked in the middle of October and placed in common storage will usually be firmer by the first of February than will the same fruit picked the first of October and placed in the same storage. Ripening during the fall in air-cooled storages goes on faster than does ripening on the tree.

In cold storage, however, if the temperature is held down to 32° F. ripening in storage proceeds more slowly than ripening on the tree. Allowing fruit to soften too much on the tree will give softer cold storage fruit than will be secured if the fruit is picked earlier and while in firmer condition.

There are some general considerations which should be kept in mind when determining when to pick any variety of fruit. So long as the foliage on the tree is in good condition the fruit is growing in size usually about as rapidly as at any time during the growing season. The longer picking is delayed, therefore, the better the size that will be secured. Red color development is also going on rapidly during the late growing season and late picking usually gives better colored fruit. The tendency to scald in storage which is so serious on certain

varieties is also greatly reduced by late picking. There is somewhat less tendency for late picked fruit to shrivel in storage due to a greater development of wax on the well matured fruit.

On the other hand allowing the fruit to remain on the tree too long is rather serious with certain varieties. Varieties such as Jonathan, Delicious, or Stayman may ripen quickly and show a breakdown in storage if allowed to become too ripe. Water core in the fruit is also closely associated with allowing the fruit to remain on the tree too long.

With these points in mind it is clear that the best time for picking any variety will depend largely upon the storage behavior of the variety. We will now discuss in detail the best time of picking for a number of the varieties grown in this section.

Jonathan

Jonathan is a variety that does not scald in storage. It does have a tendency to blacken about the pores or form "Jonathan spot" unless held in cold storage. If allowed to become too ripe on the tree Jonathan is very likely to develop a physiological breakdown in storage, the flesh of the fruit collapsing and becoming discolored. It is desirable to leave Jonathan on the tree sufficiently long to get high color but from the storage standpoint the greatest danger in Jonathan is over-maturity.

We have found that the pressure test is a very valuable index for proper picking condition. Jonathan apples on the average should not test under 15 pounds when picked if good storage quality is to be secured. Single apples might test lower than this but if the average at picking time is under 15 pounds storage trouble is likely to result.

Delicious

Delicious is also a variety which does not scald badly in storage but it does tend to become overripe. In order to have storage quality in Delicious it should be picked when testing not less than 16 pounds pressure. Delicious also tends to loosen and drop when ready to pick and the loosening of the fruit is a very satisfactory index.

THE PRESIDENT, MR. ENGLAR: Does maturity when picked have any effect on the development of Jonathan spot?

DR. MAGNESS: There is apparently little correlation between the picking condition and the development of the spotting which follows. There has been some preliminary work done that indicates that acid impregnated paper would help out but that isn't definite as yet.

MR. ENGLAR: Being overripe before picking doesn't have any effect on it then, I take it.

DR. MAGNESS: No. I think not. The spot in the highly colored fruit is darker and appears to be somewhat more severe. The spotting is not sufficiently controlled by early picking to make this an important factor in determining the time of picking susceptible varieties.

THE PRESIDENT, MR. ENGLAR: Isn't the spotting found very frequently on Spitzenburg, King David ,and Rome Beauty?

DR. MAGNESS: Yes, there are several varieties that develop these spots. They are a high temperature trouble. This spotting hardly ever develops in cold storage but will develop in air-cooled storage and seems to develop badly at any temperature above 45° F.

THE PRESIDENT, MR. ENGLAR: We have always been lead to believe that if it was overripe before picking it would develop quicker.

DR. MAGNESS: I think it does develop in some varieties more quickly than in others and probably overripeness is somewhat of a factor. In varieties which have a natural tendency to spot, however, picking a little bit early will not prevent the trouble if the fruit is held at high temperatures.

Stayman Winesap

Stayman Winesap is one of the most difficult varieties with which to determine proper picking time. If picked too green it has a pronounced tendency to scald while if it is too ripe Stayman may break down in storage and not have satisfactory holding quality. It doesn't have the tendency to loosen and drop from the tree when in proper picking condition so much as many other varities. The pressure test and the ground color of the fruit are quite satisfactory indices to picking condition. If the fruit is testing around 16 pounds and it has a

distinctly yellow cast it is usually in good condition for picking.

There is one other point which is worthy of discussion in connection with the time of picking, particularly with the early varieties of apples. There seems to be a fairly definite time interval between the date of full bloom and the proper time of picking for the different varieties. We have found surprisingly similar time intervals required regardless of the section of the country or the exact climatic conditions prevailing. If I were you I would make a pretty careful record of the time when your fruit is in full bloom and then make a record of the number of days between that time and the time when it is ready to pick. I believe that you will find that from year to year it runs pretty close to a definite interval. For instance Jonathan will usually be ready to pick in from 140 to 145 days from the time it is in full bloom if you are picking for best storage results. We have considered full bloom to be the time when the first petals begin to fall. Delicious usually requires about 140 to 150 days while Stayman will usually run to about 160 days. Grimes would run about 145 days although most Grimes apples are picked somewhat earlier than that. A very satisfactory test for time of picking Grimes is the way the fruit is holding on the tree. This variety usually loosens and begins to drop when it is in prime picking condition. The pressure test will usually be about 17 pounds or above with this variety.

With the late varieties such as Winesap, Black Twig, Albemarle, Pippin, and York Imperial the pressure test is of much less value in determining picking conditions. The way these varieties are holding on the tree and their color are the best indices of proper picking season. There is little danger of their staying on the tree too long so far as good storage condition is concerned. Late picking increases both size and color. With the York and the Black Twig the storage life is usually limited by the development of storage scald. The amount of scald is greatly decreased if the fruit is well matured and well colored when picked.

This discussion briefly summarizes the factors to be considered in determining the time of picking of apples. The color of the fruit, the way it is holding on the tree, the firm-

ness of the flesh, and the length of the growing season which has elapsed are all of value in determining the time to remove the fruit from the tree. These factors are discussed in detail in United States Department of Agriculture Bulletin No. 1448 which has just been issued and which is available for distribution at the present time.

If the fruit is to be handled through common storage usually the later it can be picked the better fruit you will have for storage. That is especially true for the later maturing varieties. I think most people have the wrong idea of the temperatures which can be secured in a well constructed, well managed air cooled storage house. Thermographic records of the temperatures which prevail in such houses show that the average temperature maintained during the fall months is usually not lower than the average of the outdoor temperatures.

Consequently, the later fruit is picked the shorter will be its exposure to the high temperatures before freezing weather comes on. We have found in actual practice that we practically always get firmer fruit for air-cooled storage holding if picking is delayed as long as practicable.

In picking for cold storage it is very important to know whether or not the variety is likely to develop storage scald. Varieties tending to scald badly should be well matuured when picked. The most important single thing, however, in handling apples for cold storage is the moving of the fruit into storage promptly after it is picked.

Apples will ripen about as much in one day at 70° F. as they will in a week to ten days at 32° F. A delay of a week in moving the fruit into storage is likely to mean one to two months shorter holding period depending upon the outside temperatures which are prevailing. At 50° F. apples ripen about as much in one day as in four to five days at a temperature of 32° F. It cannot be too strongly emphasized that if the fruit is to hold in a satisfactory manner that it should be moved into storage promptly after picking and packing.

Another point which should be discussed before closing is the use of shredded oil paper in the packing of varieties such as Black Twig, York Imperial, and Stayman Winesap which tend to scald badly in storage. With these varieties the possible storage period will usually be determined by scald unless

oil paper is used. It is necessary that the paper be uniformly distributed throughout the package if satisfactory results are to be secured. A good many packers who have used shredded paper will probably get unsatisfactory results due to the paper not being well distributed throughout the barrels.

Q. Should the paper come in contact with every apple in the container?

A. In order to get the maximum control it should come in contact with the apples though not necessarily on both sides. If you have apples in the barrel which the paper does not come into contact with at all you are much more likely to get scald. It is not necessary to put in a thick layer of paper betwen the fruit layers but it is necessary that it be well distributed. Putting the paper in carelessly has given rise to considerable dissatisfaction due to scalding in certain portions in the barrels.

Q. What do they do in packing this paper, who packs it, do they have a boy to do it or who?

A. Dr. Brooks, who has done most of the work on oil paper says that where they have a boy to put the paper in as the barrels are filled they get a better distribution than where they depend on the person filling the barrel to distribute the paper. The additional cost of packing with oil paper will probably be about 25 cents per barrel including the cost of the paper and extra labor. About one and one-half pounds of paper per barrel of fruit should be used.

Q. Is the color of the seeds of value in determining when to pick apples?

A. The seeds of winter storage apples should always be brown when the fruit is picked although beyond this the color of seeds when picked is of little significance. Winesap seeds, for example, will be brown earlier than Jonathan seeds. The seeds of most varieties will be brown 20 to 40 days before the fruit is ready to pick.

Q. How rapidly will fruit soften as judged by the pressure test?

A. I think you will find the pressure test will usually come down about one pound every week or ten days. The rate of softening is somewhat irregular but will usually average about that.

Q. What is the price of this instrument?

A. I believe that $8.50 delivered is the price?

Q. Can you get it in Washington?

A. Yes.

Q. How much of this shredded paper should be used?

A. Dr. Brooks recommends about one and one-half pounds to the barrel.

Q. About what pressure does a peach take?

A. We have conducted quite a few tests using this instrument on peaches on the Pacific Coast. We have found that Elbertas tested from 12 to 16 pounds when sufficiently firm to carry up to ten days in transit. Fruit somewhat softer than this would carry fairly satisfactorily up to 4 or 5 days and would be somewhat better quality. Fruit testing above 16 pounds was of very poor flavor when ripe.

The pressure test on peaches gives a very satisfactory index of the condition of maturity, which is rather difficult to judge from the external appearance. While peaches must always be picked according to color it is probable that the pressure test will be of considerable value in standardizing the maturity at which peaches will be picked and shipped.

THE PRESIDENT: Now the next item on our programme is an address by Mr. S. B. Shaw, Chief Inspector of the State Department of Markets, at College Park, Maryland on "Shipping Point Inspection in Maryland During 1926."

SHIPPING POINT INSPECTION IN MARYLAND DURING 1926

S. B. SHAW.

Chief Inspector, Maryland State Department of Markets.

The 1926 season witnessed a continued growth in Federal-State Shipping Point Inspection of fruits and vegetables which was first started in Maryland in 1924. During that year 426 inspections were made for 16 applicants at 6 loading points. In 1925 there was an increase of 211 per cent. in the number of cars inspected, and an 80 per cent. increase in the number of applicants served, or 1325 cars inspected for 29 applicants.

During each of the past two years, the largest number of inspections has been made on apples and Irish potatoes. In

1926 the production of these two crops materially increased, and a corresponding increase resulted in the number of inspections. The increase in total number of inspections, however, was not confined to these two crops. With the exception of cantaloupes, there was a substantial increase in the number of inspections of all the eight commodities handled last year.

In all 3010 cars of the same eight commodities were inspected. The accompanying table will show the applicants and principal points at which these inspections were made. 3010 cars is an increase of 127 per cent. over last year and 611 per cent. over 1924. A corresponding increase was made in the number of applicants. In 1925 twenty-nine growers and shippers made use of the service; this year there were seventy-one applicants, or an increase of approximately 145 per cent. Inspections were made this year at 56 railroad points as compared with 33 last year, and 6 in 1924. The commodities inspected were divided as follows:

Apples	1290	cars
I. Potatoes	903	"
Peaches	430	"
Strawberries	165	"
S. potatoes	115	"
Cucumbers	68	"
Tomatoes	34	"
Cantaloupes	5	"

The service this year began May 21st with strawberries, and continued until November 20th when the last car of apples was inspected. Work started two weeks later than last year, but the season was two weeks later in general all over the state, so that the service was again maintained for a full six months' period. During this time 8,861 cars of the above eight commodities were shipped from 89 points in the state, exclusive of Baltimore. Approximately 34 per cent. of this number were inspected at shipping point. This is an increase of 12 per cent. over the proportion inspected last year.

As usual, it is difficult to estimate the actual monetary value of shipping point inspection, but from figures secured from some of the largest shippers and from actual prices obtained by the Market News Service on the Eastern Shore during the

movement of four of these commodities, the total estimated f. o. b. shipping point valuation of the 3010 cars inspected was $1,509,973.00. The basis of this valuation is as follows:

1,290	cars	apples (175 bbls. per car) average value	$2.50	per	bbl.	—$564.375
903	"	I. potatoes (210 bbls. per car) " "	3.00	"	"	— 568,890
430	"	peaches (400 baskets per car) " "	.60	"	basket	— 103,200
165	"	strawberries (240 crates per car) " "	4.73	"	crate	— 187,308
115	"	S. potatoes (155 bbls. per car) " "	2.00	"	bbl.	— 35,650
68	"	cucumbers (400 baskets per car) " "	1.00	"	basket	— 27,200
34	"	tomatoes (500 crates per car) " "	1.30	"	crate	— 22,100
5	"	cantaloupes (500 crates per car) " "	.50	"	crate	— 1,250

The entire cost of inspecting 3010 cars was $13,520.70, or approximately nine-tenths of one per cent. of the total f. o. b. shipping point value of the products.

A comparison of the f. o. b. prices just enumerated with those of last year will show a considerable variation. The greatest difference is noticed in the prices of apples, peaches, sweet and Irish potatoes. This is but a reflection of the heavy production of these crops. The price on tomatoes and cantaloupes did not change so greatly, while the price on cucumbers increased. A comparison of these prices is as follows:

	1925			1926		
Apples	$ 3.60	per	bbl.	$ 2.50	per	barrel
Peaches	2.50	"	basket	.60	"	basket
Tomatoes	2.00	"	crate	1.30	"	crate
Strawberries	5.33	"	crate	4.73	"	crate
I. Potatoes	5.27	"	barrel	3.00	"	barrel
S. "	3.38	"	barrel	2.00	"	barrel
Cantaloupes	.90	"	crate	.50	"	crate
Cucumbers	.87	"	basket	1.00	"	basket

As usual the indirect value of such inspection service is difficult to determine. Judging from reports received, most shippers have felt that the expense was amply justified. A majority of the growers are coming to a keener realization of the real value of the service, especially as it affects their methods of grading and packing. They are beginning to understand more fully the benefits of having a reliable and impartial analysis made of their harvesting and packing operations.

As an evidence of this, the requests for inspectors to be assigned to individual packing houses have increaased 100 per cent. this year. Such a type of service is necessarily more expensive, but in the majority of cases, applicants have been willing to pay the additional costs. Greater progress has been made during the past year in the actual use of recognized U. S. standard grades than ever before. In some instances, growers have before shipping unloaded, regraded and repacked cars of produce which failed to meet the requirements of such grades. There seems to be a growing tendency on the part of both grower and shipper to send to the market products which do meet certain definite grade requirements. Shipping point inspection is perhaps the best means whereby this can be accomplished.

The following table will show the number of cars in each grade of the various products inspected:

Product	U. S. Fancy	U. S. No. 1	U. S. No. 2	U. S. Com.	No Grade
Peaches	9	290			131
Cucumbers		17	26		25
Tomatoes		21			13
Apples	18	843	85	215	129
I. potatoes		590	10		303
S. "		102	2		11
Cantaloupes		4			1
Strawberries	126				39
Total	27	1993	123	215	652

Nothwithstanding unfavorable weather conditions at harvest time, nine cars of peaches went out as U. S. Fancy. From reports of inspectors who had been working on other peach deals, this compared very favorably with shipments from other states. It will be noted from the above figures that approximately 78 per cent. of the products inspected met grade requirements. On the 3010 cars inspected, but 5 appeal inspections were requested at destination. All five were on apples. In two instances shipping point inspection was upheld and in three it was reversed. According to the U. S. Bureau of Agricultural Economics, this ratio represents a fair average of reversals during any one season.

The financial arrangements for the service this year continued the same as last year. Similar contracts were signed and advance payments of $1.00 per car on the minimum num-

ber of cars to be inspected were required from each applicant.

A total of 38 men were employed on the various deals. Two of these were continuously employed from the beginning to the end of the season. Salaries ranged from $30.00 to $45.00 per week. The basis of payment was made upon the length of time a man had been in the service and upon his ability to perform the work. The salary charge per car was determined by the number of cars inspected by each man during his time of employment. The more cars an inspector handled in a given period of time, the less was the cost per car.

Heretofore the majority of inspections at any shipping point were made on the group basis—salary cost and automobile mileage expense incurred in going from one applicant's place to another being combined and the total cost pro rated on each car inspected. Wherever possible this same method of procedure was followed this year. In instances where applicant requested the full time service of an inspector, the applicant agreed to pay the entire cost thus involved, irrespective of the number of cars inspected.

At the beginning of the season, those who desired inspection naturally wanted an estimate of the possible cost of such service. It was impossible to determine the actual cost or to state a fixed fee which would absolutely cover all expenses. Based upon previous experience and judging from prospective tonnage in sight, it was believed that an average fee of $4.00 per car would take care of the total expense this season, and assuming that under average conditions most growers would pack out an average of approximately 12 cars per week, or 2 cars per day, it was estimated that the cost of such individual service would be about $50.00 per week.

In some instances, particularly in the case of Irish potatoes, this estimate worked out very well; in other instances, however, the costs exceeded considerably the original estimate. This condition was brought about largely by unfavorable weather conditions which delayed the harvesting of the various products. Perhaps a most striking illustration of this kind of condition is in the handling of the peach crop in Western Maryland. From forecasts made by growers and shippers, it was estimated that there would be a heavy tonnage beginning about the first of August and lasting for ap-

proximately three to four weeks. Accordingly, provision was made to secure an adequate number of inspectors at the time indicated. What really happened in this instance was that because of continued rainy weather, the shipping season was delayed for two weeks; the condition of early varieties and the heavy supplies on the markets were such that it resulted in a heavy reduction in the actual number of cars harvested. So the actual shipping season extended over a period of approximately ten days to two weeks. These factors of necessity increased the cost per car on inspection and made the service much more expensive than previously anticipated. Despite these unfavorable conditions, the actual cost per car was kept to $5.30 and in the majority of cases growers understood the situation and were willing to meet the additional costs.

In addition to the foregoing salary and automobile expense costs, an overhead expense was charged against each car. These items of overhead include the original cost of transporting inspectors into the territory; the cost of such tools and equipment as are required in performing the work; the cost of certificates and the typing of same; the printing of such other forms as work sheets, report blanks and short form certificates; and such telephone and telegram expenses as were incurred. The average overhead charge for the entire season on 3010 cars was 45 cents per car, which is a reduction of 13 cents per car over the overhead charge of last year.

Then there is necessary an additional overhead charge to take care of the necessary items of expenses (amounting to 10 cents per car) levied by the U. S. Bureau of Agricultural Economics and incurred by that department in the general supervision of the work. Even with this additional overhead expense, the actual overhead cost was 3 cents less per car than last year.

Because of widely scattered points, variation in tonnage and difference in time to harvest, pack and load products in various sections, the actual cost per car in these different places and for the different applicants varied considerably; in some instances where inspectors had to travel considerable distance between points in making inspections, these costs per car increased perceptibly. The average cost, however, for the

entire season on 3010 cars was $4.46, or a reduction of 16 cents per car over the actual cost last season.

Much credit is again due the inspection division of the U. S. Bureau of Agricultural Economics for the cordial co-operation rendered in every instance and particularly for the very efficient corps of inspectors detailed to the service in Maryland.

As already stated, a total of 38 inspectors were employed throughout the season—this is an increase over last season of 100% in the personnel employed. So efficient were these men in the performance of their duties that without exception the entire personnel has been requested for next season. Two of the heaviest shippers in the state have already signed applications for inspection in 1927, requesting that the same inspectors be assigned to their packing houses for the entire season.

THE PRESIDENT: I haven't had much experience except with one commodity in this inspection and that is apples. I would like to see how many of you have shipping point inspections—how many of you have been using it. (Several members raised their hands.)

Well, we have had it for three years and I feel that it has been worth all it has cost us so far. But I am bound to say that it has been quite expensive for me this year. It held me up for about two weeks this year when I was right at my busiest, or should have been. I got about 3,000 bushels on the ground while I was sitting around waiting for the apples to get ripe and get color enough to enable me to pick the rest of them, to pass the U. S. No. 1 on color requirements. Indeed I think it was almost enough to drive a fellow wild. After a few weeks of our watchful waiting, we had something like 7,000 or 8,000 barrels packed, and it was getting to be the middle of October and we were sitting around waiting for the apples to get ripe enough to pick and we had an order for a large shipment of apples. Then the inspector came. Now there is just the question I want to call your attention to. Mr. Shaw, of course, knows more about this inspection proposition than I do. But there is one point where I disagree with him, slightly, and I hope he will take no offense with my differing with him. He talks about the uniformity of these inspections

and the work that is done. I presume that that is understood everywhere, and these terms are universal. That may be and doubtless is so. But after all I think it does depend somewhat on the inspectors' own personal judgment in a way. In fact I can't see how it could depend on anything else. Anyway I think that has at least something to do with it. We had a whole car of splendid apples and the inspector went with me out into the orchard and looked this block over. Then we got this order for a car in North Carolina, calling for U. S. No. 1. He said, "You can just go ahead and pack them." This was on a Monday and he started back and then we called him back after we had loaded the car. This time a different inspector came and he said "We can't pass this car on color. They are going to be off color." So I didn't pack another apple that day, but wired to the fellow in North Carolina and said "Car is being loaded, and Government inspector says O. K. except for a point or two off in color. What shall we do."

We got a wire back "Absolutely must be U. S. No. 1,—don't ship." There they were to sell the second time. They had to go somewhere. The car was all loaded and I had to find a place to dispose of them and the Government wouldn't pass them as U. S. No. 1. At about the same time I got another car packed and standing up there on the siding and this time another inspector came and looked the car over, and he saw this other carload and inspected that. I didn't say anything to him about it and after he got through looking them over we walked on down to the house and sat there and talked a few minutes and then he started to write out his certificates. Both of these inspectors were nice fellows—as nice as they make them. So he wrote out, as I afterwards discovered, certificates for U. S. No. 1 on all the apples he had inspected. I of course didn't have any idea of sending out this first car as a U. S. No. 1, but he wrote out a certificate for it, for U. S. No. 1 and laid it on the desk and then after talking for a few minutes more, with me, he left. I went to the packing house and he went on back to town. That evening I was very much surprised to find that I had a U. S. No. 1 certificate lying on the desk. Everything was "fine as silk." That is the uniformity of it. Both of them doing the same thing. I have no idea of criticising this service or Mr. Shaw,

but I think after all it does depend somewhat on the fellow's personal judgment. And, honest to goodness, I think the second fellow had a little bit better judgment than the first fellow. Not that I think he did any better job, but I want to remind you that when you have worked all summer and then you had as much trouble as I did, selling this crop and then you get an order and it is up to the railroad station ready to go and is all right except a point or two in color it goes pretty hard.

I have told these fellows this fall—we had four of them in there during the season, by the way,—that I didn't know whether I wanted this inspection or not because I thought I had as much sense about what ought to go into a barrel of apples as they did, and I was more concerned and interested in what went into those barrels than any one of those four fellows. I know that personally they were not as much interested in what went into that barrel as I was, even if they have had the training to know what should go into the barrel. I will say this that they will pass stuff in those barrels that I wouldn't want to have to go out in a barrel bearing my name. But I want to say that these fellows have been worth all that they cost us, because of the protection we get from their inspections.

When they have taken the pains to show my men in the packing house a proper method for running that fruit into the barrel and kept on showing the men until they understood it, that is the biggest thing that they have ever done for me. And that is of big value to me and to those men in the packing house. I think if I had nothing else to do than look after these fellows in the packing house and see that they are doing everthing right, and the way it should be done, I might not need these inspectors' services, but I have too many other things to attend to. For that reason I have always felt that it was worth all that it cost just to see that things were kept in line with what ought to be done. I want to say to you that when this fellow came along and gave me this No. 1 certificate I used it; I took a chance and sent them out and really made more, in the end, on that deal than I would have made with the first sale.

I am just wondering, now whether you are all satisfied with the inspection.

A MEMBER: I have had a few of them and I find that it is getting better all the time.

THE PRESIDENT: I think it is a splendid thing to have this service here in Maryland, and I am glad to know that it is increasing. We have one report that we failed to have made at the morning meeting. That is the report of the auditing committee on the books of the Secretary-Treasurer.

REPORT OF THE AUDITING COMMITTEE

By MR. A. F. NOFSINGER

Mr. President and Members:

The auditing committee has audited the accounts of the Secretary-Treasurer and find them in good shape and correct.

THE PRESIDENT: Now we have another very important subject at the close of our meeting. We are going to ask Mr. Carpenter of Hancock to tell us what kind of packing house is most efficient.

THE BUILDING OF FRUIT PACKING HOUSES FOR EFFICIENCY AND ECONOMICAL PACKING

By G. S. L. CARPENTER, *Hancock, Maryland*

The building of a fruit packing house so that it will be efficient and, therefore, should result in economical packing, depends upon the commodities and packages which are to be packed.

In Maryland, peaches in bushels and carriers, and apples in bushels, boxes, and barrels are to be considered in the design of commercial packing units.

The location of the building, its design, and the arrangement and design of the equipment determine its efficiency.

Location of Building

Under most conditions it is desirable to locate the building at the railroad, where fruit can be loaded on cars with a minimum of handling. We have found that a location whose slope is toward the railroad permits of the most desirable type of design.

Design

We feel that is is desirable to erect a building designed primarily for packing; efficiency, and economy in packing, need not then be sacrificed to the requirements of storage.

The storage of packages can be best accomplished in buildings of much cheaper construction, located adjacent to the packing unit and railroad siding, with a resultant greatly reduced fire hazard.

A building, of the one story, monitor type roof design, with basement, will provide for:

1. An abundance of diffused light.
2. The elimination of supporting timbers in the packing area.
3. A desirable arrangement of equipment to better advantage than other types of buildings which we have studied.

A two level main floor provides a desirable arrangement of a receiving platform and a main packing floor level, permitting the segregation of each operation in the areas specially designed for them and the advantageous arrangement of the equipment throughout the shed.

The design of the building provides satisfactorily for an abundant supply of diffused light for day time work. There should also be provision made for ample lights properly equipped with reflectors for work in the evenings, so that the greatest possible efficiency may be maintained throughout the working day.

The height of our floor levels is designed to require the minimum of effort in the handling of the fruit, so that:

The Receiving Platform—is on a level with the beds of the trucks used.

The Packing Floor—is from three to four feet below the level of the receiving platform—governed by the graders used.

The Basement Floor—is on a level with the floors of the refrigerator cars into which the fruit is directly loaded.

Equipment

The equipment desirable for the grading and sizing of the fruit will depend entirely on the commodity and packages to be used. I do not feel that there is any one grader which will

satisfactorily pack the commodities and packages which most of us must consider in our Maryland orchards. There are, however, graders which will permit of the desirable use of more than one package.

In choosing equipment, the factors of greatest importance to be considered are, capacity, cost, accuracy, and elimination of bruises incidental to packing.

The arrangement of the quipment chosen, should route in a straight line all fruit from receiving platform to cars, and by having definitely defined areas in which each portion of the work is to be performed, confusion and waste of time and effort can be avoided.

Do not perform any operations on the main packing floor that might be desirably accomplished in the basement. Our arrangement consists of three graders for the handling of fruit passing U. S. No. 1 grades, and one defective grader which receives all defective fruit from the three graders, where it is resized and graded so that it will meet the requirements of the particular trade for which it is intended. This results in the elimination of much extra hauling of fruit, through the segregation of grades and also of much confusion.

Confusion means added expense and we have endeavored to avoid it:

1. By locating the help so that they cannot congregate in large groups or find it necessary to walk through areas in which others are working.

2. By facing the barrels on the opposite side of the grader from that on which the running is carried on, running the barrels on gravity conveyor under the grader platform.

3. By running the barrels on triple deck barrel runs immediately to the facers, so that they do not have to move from their position.

4. By labeling all barrels in one area, the barrels rolling on the barrel run from the elevator to this area, where they are labeled and forwarded to the facers, segregated according to the sizes to be packed.

5. By receiving the faced barrels from the gravity conveyor, and after running, delivering them to the headers.

The headers have their own area in which to work and deliver their headed barrels to the headliners who place the

packed barrels on the lowerators for delivery to the basement.

It is our desire to have a place for every one to work and to keep everyone in that place. In this way only do we feel that confusion can be avoided and economical results obtained.

Conveyors for carrying all fruit are provided and cider stock is elevated on a continuous web belt into storage bins, from which it can be loaded into the car by gravity.

In studying the arrangement of packing houses during a trip through the Pacific Northwest, and California, this past summer, it was noted that the general principles underlying the building and equipping of packing houses were, in the most successful houses, based on similar arrangements. Many sheds used elaborate equipment which should be avoided and is not necessary to secure efficiency

In designing a new fruit packing house, be sure that your design reduces to the minimum the physical effort required for the handling of the fruit and that all work is performed under the best of conditions. This will result in the maximum of efficiency.

In remodeling an old shed apply as many of the principles as would prove desirable under your circumstances, governing your decision by the results which you would obtain in efficiency and economy.

Q. What is the most accurate grader?

A. For what particular type work?

Q. Apples.

A. How packed?

Q. In barrels.

A. I cannot answer that from our experience as we have not used the one grader that claims to have the greater efficiency in the sizing of barreled apples. I have reference to the Skinner apple grader. They claim greater accuracy in sizing for their machine than any thing else on the market. We have not had any experience with a grader that would warrant us in recommending it for the desirable packing of the three distinct types of packages, i. e. boxes, barrels, and baskets.

Q. What about the box graders?

A. My inclination would be to continue the use of the regular grader used for boxing. This machine, the Cutler,

was designed many years ago, and has given great satisfaction in the box apple producing regions. I would use that rather than spend my money on newly designed equipment, which is considerably higher in price.

Q. What type did you use in the picture that you have shown?

A. A Trescott grader, used extensively in this section for the packing of barrelled apples.

Q. Is it true that there is a firm making the Skinner grader in this part of the country—in our section? I believe it is at Crozet, Virginia.

A. Yes, that is right. They have the agency for the barrel apple states, and I think that the machine is manufactured at that point.

Q. Is it desirable to purchase a grader equipped with cleaner?

A. Yes, in the Pacific Northwest, and in the East, where late sprays are necessary. The cleaner used most extensively in the northwest is manufactured by Andy Moe at Toppenish, Washington. It is probably more desirable than the brush or Skinner type of cleaner. It consists of revolving drums holding cloths, which are removable, brushing all apples as they pass through the cleaner on roller conveyors. The spray residue removed is withdrawn by a fan. This machine costs about $700.00 f. o. b. Toppenish.

THE PRESIDENT: Now, ladies and gentlemen, the hour is getting late, and if there are no more questions to be asked, this ends our program and we will now adjourn.

(Thereupon at 10:15 P. M. the Convention adjourned *sine die*.)

REPORT

OF

TWENTIETH ANNUAL MEETING

OF THE

Maryland Crop Improvement Association

January 5-6, 1927

The twentieth annual meeting of the Maryland Crop Improvement Association was held in the Royal Arcanum Building on Wednesday January 5, 1927. The second session of the meeting was held in conjunction with the Dairyman's Association in the Odd Fellows Hall on January 6.

At the first of these sessions a full discussion of the red clover seed situation was had. Addresses were made by Dr. A. J. Pieters, Acting Chief of the Forage Crop Division, United States Department of Agriculture; Professor George L. Shuster, University of Delaware; and by Professor Geary Eppley of the University of Maryland. The red clover seed program created more than usual interest and discussion. Dr. Pieters used lantern slides to illustrate his talk, and showed by pictures, the effect of disease on clovers of various origin. Alfalfa was the main topic of discussion at the joint meeting of the Crop Improvement Association and Dairyman's Association. This discussion was led by Professor J. E. Metzger, and personal experiences in alfalfa production were given by Mr. Daniel Pierce, Mr. Hibbard, Mr. Zentz, Senator Snader, and Professor Taliaferro.

Although corn yields were lower in 1926 than in 1925, and the quality was not generally as high as in 1925, the number of exhibits was nearly as great as in the preceding year. Also the corn shown at the State Show was virtually as fine a quality as in any preceding year. The increase in the number of prizes in several of the classes seemed to meet the approval of

the exhibitors. Awards were made to fifty-three exhibitors, showing in five different classes. The sweepstakes prize was won this year by Mr. John S. Ward, of Leesburg, Virginia. Mr. Ward exhibited an excellent ten ear sample of corn. He has also been a faithful exhibitor and member of the association since 1920.

In order to assist exhibitors in arranging their samples before entering them in the show, the association, this year, offered each exhibitor a corn tray in lieu of a $2.00 prize, or its equivalent, and twelve exhibitors availed themselves of this opportunity. Corn trays of standard size are considered indispensable by the most successful exhibitors. It is hoped that the association may hold this offer open for at least another year, and that prior to the next show, a number of exhibitors will make requests for these trays. The trays are of good quality and well built. The $2.00 charge for them merely covers their cost.

In order that a complete report for a full year may be made at the time of the annual meeting, the Treasurer closed books on January 1, this year. The report, therefore, contains some items that were included in the last published annual report.

The Treasurer's Report
January 1, 1926—December 31, 1926

RECEIPTS

Balance from 1925	$31.20
Received from dues, 1926	56.00
Received from dues for 1927	10.00
Maryland Agricultural Society appropriation	236.05
	$333.25

EXPENDITURES

Annual dues, Maryland Agricultural Society, 1926	$20.00
Stamps (1925 Show)	14.50
Stamps (1926 Show)	9.50
Pictures, Grand Champion corn	1.00
Grand Champion Trophy (Silver pitcher)	18.00
Printing, Corn Show Premium Lists (1925 Show)	18.00
Printing, Corn Show Premium Lists (1926 Show)	14.00
Travel Expense of Dr. Gardner	36.05
Travel Expense of Mr. T. R. Stanton	2.43
Premiums, State Corn Show (1925)	164.00
Printing of Badges for Corn Show	9.07
Labor and Supplies at Corn Show	4.50
Balance on Hand, December 31, 1926	22.20
	$333.25

CLOVER PROBLEMS IN THE EASTERN UNITED STATES

By A. J. PIETERS,
United States Department of Agriculture.

The benefits to be derived from a good growth of clover are so manifold that it is not necessary to mention them, and in the main the term clover must still be understood to mean red clover. There is much more alsike clover grown than formerly, and the acreage of sweet clover has increased many hundredfold, mainly, however, in the Mississippi Valley and the Northwest. When an eastern farmer talks of clover, however, he means red clover, and when he wants to know why he has so much trouble with his stand he wants to know about red clover. The present discussion will have to do, therefore, with red clover rather than with any of the other clovers.

The trouble experienced with red clover has naturally been reflected in a decline in acreage. This fact is shown graphically in (slide 1.). This diagram was prepared from data in the U. S. Census Reports for 1899, 1909 and 1919, and shows what a small acreage of clover there is in proportion to cereals.

Not only has the acreage of red clover declined as compared with cereals, but the clover and the clover-timothy acreage has not kept pace with the acreage in all hay and forage (slide 2). This fact is even more significant than that the clover acreage has declined in proportion to that of the cereals. The acreage in all hay and forage in this territory has considerably more than doubled since 1899 and nearly doubled since 1919. At the same time there has been only a slight increase in the acreage of timothy and clover and the acreage in clover alone was no larger in 1919 than in 1899. We shall make a necessarily brief inquiry into some of the reasons why clover has been so unsatisfactory.

At the outset, two general propositions may be laid down; First, all crop plants have many varieties and these vary not only in external appearance but what is more important, in the way they respond to local conditions. Some wheats rust more than others, some resist cold better; some corn varieties are adapted to one set of conditions, some to another. Second, given a variety adapted to the section in which it is grown, the vigor of growth will be an index to the sum total of favor-

able and unfavorable conditions. If soil and weather conditions are favorable the plants will, as it is sometimes expressed, be "happy", they thrive, always assuming no unusual attack of insects or diseases. Let soil or weather conditions, or both, be unfavorable and the growth is weak, but if these conditions are very bad the plants may die. These two propositions apply to red clover just as they do to any plant. Let us discuss briefly the second of these two propositions. Today every farmer knows that plants need certain food elements and that while all plants need the same elements there is a great difference in the way various crops respond to the addition of one element or another, and a great deal of difference in the soil needs for various elements. Red clover is especially grateful for two elements—lime and phosphorus. Land may produce fair crops of wheat or corn and yet not have enough lime for clover. One of the most widespread causes of clover failure is the lack of lime, slide 3 (7) and 4 (8). This fact has been abundantly proved by many of the State Experiment Stations. No general statement can be made on just how much lime must be applied; this will depend on the lime requirement of the soil and also on the organic matter and phosphorus in the soil. Sometimes a heavy application of manure or phosphorus will make conditions so favorable for clover that it will grow well in spite of the fact that the lime requirement of the soil is high. Usually, however, if the soil shows a lime requirement of 1,000 pounds or more per acre, lime must be applied if a good growth of clover is desired. Next to lime in importance, especially in the eastern states, is phosphorus. There are well limed soils on which clover produces but half a crop; the lack of phosphorous is a frequent cause of this condition, slide 5 (11). Stable manure will often make the difference between a good stand and a poor one, slide 6 (12) but when a soil is very deficient in lime, manure alone will fail to give maximum crops, slide 7 (13). It is not a theory but a fact attested by exact experiment and by the experience of farmers that lime, phosphorus and manure will make clover grow on many a field on which it formerly failed. Of course, good drainage is necessary. Red clover will not do well on poorly drained soil, but given well-drained soil, lime and phosphorus or manure, and clover will respond with an abundant harvest.

We come to the first of our two general propositions, that there are strains or varieties in all crops and that these vary in their adaptability to local conditions. This fact has long been known of most crops but it is only of recent years that it has been realized that the principle applies to clover as well as to other plants. Until a few years ago, clover was clover and the seed was sold on a commodity basis. There were grades of clover seed but the grade depended on the appearance of the seed, size and color being the important factors. Then the question of purity and germination came to the fore and now all of the large seed dealers willingly comply with State laws governing these matters. More recent studies show that to purity and germination must be added "adaptability," That is, the clover raised from the seed must be able to endure the conditions under which the plants must grow. These conditions are not necessarily the same everywhere; in the northern parts of this country cold is the limiting factor. Clover to succeed in Iowa, Minnesota and northern New York must be able to withstand severe winters. In the southern part of the clover belt cold is not so important a factor as disease. We are just now beginning to learn about this and the last word has not yet been said, but we know enough to be sure that in the states south of Pennsylvania (slide 8) a disease called anthracnose is widely prevalent and that it may destroy a stand in the season of sowing, or may kill the plants after the first growth has been cut. We also know that there is a great difference in the susceptibility of red clover from various sections to this disease, slide (fig 9). The dead plants shown were raised from Italian seed. (Slide 10.) Contrast this picture with the preceding one. These plants are of a specially selected anthracnose-resistant strain selected in Tennessee.

Anthracnose thrives in hot, wet weather; in a cool dry season there may be little evidence of it, but if July and August are hot and muggy an examination of spring-seeded clover of a susceptible strain will show many dead plants. The number of dead plants increases in October, and during the winter other plants affected but not dead in the fall, die, so that by spring the stand may be quite wiped out, slide 11 (26). This photograph was taken on May 1, 1923, at Arlington Farm, Virginia, and shows a perfect stand on the center plat seeded

to Tennessee resistant seed. The plat on the left was seeded to Italian; that on the right to Bohemian seed. There was a good stand of clover on all three plats in July, 1922, but in the spring of 1923 there was nothing left but weeds on the Italian and Bohemian plats. This was not winterkilling, though many of the plants did die during the winter. The ground was covered with dead plants in October, 1922, and the presence of anthracnose was determined (slide 12, fig. 9.). Another view of more of the same field; the Tennessee plat at B. The plat marked A was seeded to Italian seed, C to seed from Holland, D to seed from Poland, E to Oregon and F to Danish seed. The plats seeded to French and to Chilean seed were not so badly affected as those shown, but they had lost about 40 to 50 percent of the original stand. The plats seeded to Ohio seed were nearly as good as the Tennessee, but those seeded to seed from some other parts of the United States were about as badly affected as those seeded to French seed.

When the season has been unfavorable to the development of the disease, or when the clover has been sown in August, little or no loss of stand may occur, but even then it is likely that plants of susceptible strains will be killed after the first growth has been cut, slide 13 (20). Such a case is shown in the picture. Plats were seeded to Ohio, Idaho, Chilean, French and Italian seed. The first growth was good and was especially heavy on the Chilean plat. As soon as the first growth was cut it became evident that the Chilean, French and Italian plats were dying, and by July 21, when the photograph was taken, there was a good second crop on the Ohio, but none on the Chilean plat. The same is true of the French and Italian. This experience has been repeated not only at Arlington Farm but at various Experiment Stations in the South. This loss of a second crop may be a serious matter from the standpoint of soil fertility.

These illustrations show that red clover differs in adaptability to conditions. All European clovers are quite subject to anthracnose; some, as Italian, extremely so, others, as French, in a lesser degree. Seed from Canada and from certain parts of the United States may also produce plants that are highly susceptible. As far as our experience has gone, seed produced

in Maryland, Ohio, Virginia, and the specially selected Tennessee strain will produce plants reasonably or highly resistant, and the reason for this is not far to seek. Where the disease is present every year it will kill the more susceptible plants, either the first year or after haying, so that only the more resistant plants may produce seed. If this process goes on for several years resistance to the disease is increased. For the territory in which this form of anthracnose is present, therefore, seed produced in the territory is likely to be better adapted than that brought from a distance. It is futile to talk about hardy northern-grown seed; such seed may or may not be adapted to the disease-infected territory.

The cause of the anthracnose disease is a fungus and is one of two quite different fungi, both of which give rise to very similar external symptoms. It is impossible for any one who is not an expert to distinguish in the field between an attack by the northern or the southern form of anthracnose, but in the region from Maryland south, most of the damage is done by the southern form. When the fungus attacks the leaf stalk it causes the tissue to shrivel and the stalk bends sharply at the point of attack. The most conspicuous signs are long black streaks on the stems or the girdling of a stem just below the head so that the latter hangs down, slide 12 (24) and slide 15 (25). When the disease attacks a young plant it may go down into the crown or may girdle the root just below the crown. Such plants die before or during the first winter. There is seldom much disease on the first growth of the second year, the cool weather of spring is unfavorable, but the second crop may be so badly attacked that is seems burned. In case of a very severe attack, or of a susceptible strain, the second growth is killed as fast as it starts and the stand is wiped out.

It may be of interest to point out a difference between American and European clovers by which these strains may be distinguished, slide 16 (18). The American type of clover is quite hairy and the hairs stand out at right angles to the stem. The European clovers are either smooth, as the Italian and some of the Russian clovers, or they are slightly hairy as the English and French. In the latter case the hairs lie flat against the stem and point *up*. As the stem of the American clover ages, the hairs often fall off but the arrangement of the

hairs can always be seen on that part of the stem directly under the blossom head.

The Seed Staining Law

As a result of the discoveries outlined above a bill was passed by the last Congress requiring the staining of all red clover and alfalfa seed imported. When seed is known to be of no value in the United States generally, as Italian red clover seed, 10 percent of the seed must be stained red. Such seed should be avoided. Seed from Canada is stained violet and that from all other countries, green. The violet and the green stain do not mean that such seed is approved for use everywhere. It means merely that its use is not disapproved. It may do well one place and poorly another. The great value of the stain lies in the fact that the consumer can know whether he is sowing imported or American seed. The imported seed costs him less and if it gives a satisfactory crop there is no reason why he should not use it again; if it does not produce a satisfactory crop he will know what to avoid. The imported seed sold in this territory is practically all French.

IMPORTANCE OF CLOVER IN THE ROTATION

By PROFESSOR GEORGE L. SHUSTER,
University of Delaware.

During the biennium 1924-'25, Maryland had an average of about one and one-third million acres of cultivated crops annually. During the same period she had 83,500 acres of clover hay and 194,000 acres of clover and timothy and 19,000 acres of alfalfa. This makes a total of 296,500 acres of winter legumes or about one acre in five is devoted to legumes. That the acreage of red clover could be increased is not impossible or improbable without the loss of any other legume acreage. Let's look into some of the valuable attributes of red clover.

Soil Improver

Red clover is a great soil improver. The central roots have been known to extend into the ground some six or seven feet. The average depth of penetration is two to four feet. The secondary roots are numerous and usually arise from the upper

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third of the tap root and occupy the surface 6 to 8 inches of the soil. This root system adds organic matter to the soil. It serves as a soil pulverizer and moisture retainer. (To the clay-like soil this means that it will be more friable; to the sandy soil it means that its water-holding capacity will be increased.) A typical corn soil contains 101,000 pounds of organic matter in the surface 6⅔". Continuous cropping reduces the organic matter as shown by ten years' work in Minnesota.

Crop grown continuosuly	Pounds organic matter per acre. Plow depth.	
1895	1905	Loss
Wheat 104,200	93,500	11,000
Corn 101,100	82,500	18,600
Potatoes 100,800	78,100	22,700
When compared with a crop rotation.		
Wheat, clover timothy.. 92,200	97,700	Gain 5,500
Wheat clover (second crop plowed under)..... 96,300	114,900	28,600

Not only is the physical condition of the soil improved but there is added to the soil fertilizing constitutents. The experiment station at Delaware found that the stubble and roots from an acre of red clover yielded:

33 pounds of Nitrogen
10 pounds of Phosphoric acid
10 pounds of Potash

The top of red clover yielded per acre

70 pounds of Nitrogen
19 pounds of Phosphoric acid
46 pounds of Potash

The analyses of the roots and tops were made after the plants had grown about 4 months.

A ton of mixed barnyard manure contains:—

10 pounds of Nitrogen
6 pounds of Phosphoric acid
13 pounds of Potash

If the clover is plowed under there would be added to the soil

103 pounds of Nitrogen per acre
29 pounds of Phos. Acid per acre
56 pounds of Potash per acre

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On this basis it would take 9 or 10 tons of barnyard manure per acre to replace the clover.

Besides this fertilizer value, red clover has the ability, as has any other legume, to extract nitrogen from the air and fix it in the soil to be used as plant food. Nine years' work at the Canadian Field Experiments with clover gave a gain of 472 lbs. of nitrogen or an average gain of 52 lbs. each year by fixation, this was added to the soil and was in addition to what was in the roots and tops.

If red clover is fed as hay to live stock and the manure saved and returned to the land you will return:

35 pounds of Nitrogen
9 pounds of Phos. Acid
27 pounds of Potash

for every ton of hay fed.

Timothy when fed as hay will return in the manure:

14 pounds of Nitrogen
5 pounds Phos. Acid
21 pounds Potash

The Delaware Experiment Station has conducted fifteen years' work on continuous vs. rotation culture of corn. In the rotation a clover and timothy sod was plowed up for corn each year. The results have been published in the Delaware Station bulletin No. 146. A table is given below showing some of the main points.

SHOWING YIELDS OF CORN FROM CONTINUOUS AND ROTATION SERIES WITH VARIOUS FERTILIZER AND MANURAL TREATMENTS, AVERAGE YIELDS 1908-1923, INC.

Treatments	Continuous		Rotation		Gains for Rotation	
	Bu. Corn per Acre	Per cent. Sound Corn	Bu. Corn per Acre	Per cent. Sound Corn	Bu. Corn per Acre	Per cent. Soundness
None	16.7	28.6	42.9	60.8	26.2	32.2
M. 5 T.	56.5	78.6	78.0	86.9	21.5	8.3
M. 10 T.	56.9	81.5	84.7	88.6	27.8	7.1
N P K	57.8	78.3	76.5	89.1	18.7	10.8
2 (NPK)	65.8	88.3	84.5	91.3	18.7	3.0
PK—GM[1]	56.6	79.8	70.5	86.9	13.9	7.1
G. Manure	23.2	30.0				

[1]Minerals alone on Rotation Series.

DISCUSSION ON CERTIFICATION OF RED CLOVER SEED

By PROFESSOR GEARY EPPLEY,
University of Maryland.

Mr. President, Members of the Maryland Crop Improvement Association and visitors:

Your secretary, Mr. Metzger, asked me to open up the question and lead the discussion on seed certification with special reference to red clover.

Professor Shuster has just demonstrated to us the importance of clovers in the rotation. The value of clover as a hay is an accepted fact. Red clover is the most important legume grown in Maryland, regardless of the fact that alfalfa and alsike clover have partly replaced it. There are about 274,000 acres of red clover grown annually in this state. This includes the acreage sown with timothy. It is, therefore, proper that we should devote some time this morning to the discussion of at least one method of improving the crop.

Dr. Pieters of the United States Department of Agriculture has shown that there exists different strains of red clover, and for the successful production of red clover in Maryland, it is essential to have both a strain resistant to the disease of anthracnose and capable of producing a heavy forage yield under Maryland conditions. Dr. Pieters pointed out that undoubtedly there exists in the Middletown Valley and other clover seed growing sections of Maryland, strains of clover that are resistant to anthracnose, and well adapted to our state. He told us of the plan of Virginia to develop and select resistant strains of clover. Further, he informed us of the Tennessee resistant strain of red clover which has given such marked results when tested out at the Arlington farm. It is thus clear that there exists definite strains of red clover, which should be grown in Maryland in order to secure the best results. The problem we are next interested in then is how to get the seed to the farmer and to be sure that he is getting Maryland grown clover or some other adapted strain.

The plant breeders throughout the United States are continuously developing improved varieties of all the crops, but their big question is how to increase the supply of seed and

get it to the farmer still true to variety. This can be done only through a system of seed certification. Mr. R. A. Moore, Chairman of Department of Agronomy of the University of Wisconsin, former president of the International Crop Improvement Association, stated at a meeting of that association this fall, that the International Association was formed for the purpose of formulating methods and assisting in the distribution of improved seed to the farmer.

To show that some method of seed certification is important in order that the farmer may get seed true to variety may be further emphasized by the statement of Mr. Oogard, of Montana, president of the International Crop Improvement Association, who said that he knew a field of alfalfa in Montana, the seed from which was sold one year as northern grown alfalfa; the next year seed from the same field and plants was sold as Grimm alfalfa; and the third year, the seed from the same field and plants was sold as Cossack alfalfa.

Mr. T. R. Stanton, in charge of Oat Investigation in the United States Department of Agriculture, who spoke at this association's meeting last year, makes this statement in the September number of the Journal of the American Society of Agronomy. "The *maintenance of varietal identity* is one of the most pertinent problems which confronts the oat producers of the South" . . . "Commercial samples of Red Rustproof frequently contain a mixture of Fulghum while on the other hand Fulghum often contains some Red Rustproof. Other varieties also frequently are presented." He goes on further and states that there are improved varieties of Red Rustproof and Fulghum available, but still a great deal of nondescript varieties is grown. While he does not state definitely that seed certification is needed, it can easily be inferred from his statement that some system of the control of the distribution of improved varieties would be highly desirable.

At our own experiment station we have had experience over a period of years that shows the importance of seed certification. Improved varieties of wheat have been developed for some time at the experiment station, but all strains distributed prior to 1920 have just become mixed with the general wheat of the state. I know of one very good strain of Currell's Pro

lific wheat that was put on a very good farm and that farmer distributed that wheat in his community and each farmer who got some just mixed it with the other wheat on his farm. Today, none of that particular strain is available. In 1920, the Experiment Station distributed to farmers an improved strain of Mammoth Red Wheat. Fields of this wheat have been inspected by representatives from the University every year, and listed as to its source and purity, so today we can easily locate nearly a thousand acres of this wheat and trace its pedigree back to the original supplies from the Experiment Station, much the same as stock pedigrees are traced.

I have mentioned these things concerning alfalfa, oats and wheat in order that we might use them as a guide in our discussion today of the necessity of a system of seed certification for red clover. It would seem that seed certification would give the quickest, surest and most lasting results, in distributing and maintaining anthracnose resistant varieties.

Just what seed certification is might be hard to define, for the word certification has been much used and much abused throughout the United States. At the last meeting of the International Crop Improvement Association, there was more discussion and more misunderstanding concerning the word certification than anything else.

For our purpose, however, and the way we think in this state, of a system of seed certification in short, is this: Seed of a known origin is inspected in a field by a disinterested representative from the University who determines the trueness to variety, disease and weeds, also the possibility of being mixed with other varieties during the harvesting. The seed is again inspected after threshing, and the per cent. germination, per cent. purity, per cent. weeds, per cent. inert matter, name of noxious weeds, and any disease is determined. This information is placed on a tag and the seed is classed according to the requirements it passes. The grower should sell his seed under the Seed Certification Board's tag guaranteeing that the seed is the same as that inspected. We are using five terms in classifying wheat in this state today; Élite, Registered, Certified, Listed and Rejected. Certified in this case stands for a definite classification of seed and not merely inspected seed.

Certified seed is seed that is of an approved, adapted variety of known origin, and is limited to the per cent. of other varieties of the same crop present. It also has to pass certain standards as to its freedom from foreign material, disease, and per cent. of germination.

Listed seed is the same as certified seed as far as its origin is concerned, but does not quite come up to the standards necessary for certification. It is usually, however, better than the average seed sold on the market.

Rejected seed is any seed that is not fit for seed, because of disease, weeds, foreign material, or because it is not adapted to our conditions.

Élite and Registered seed is a classification almost entirely to indicate the generations the seed is removed from the original source. Élite seed is only grown on the farm or the Experiment Station which originally developed it. Registered seed is one generation removed from Élite seed, but they both have to pass high standards of purity.

The plan today is to get the ideas of the members of the Crop Improvement Association and anyone else who is interested, on the subject of a system of red clover seed certification, so now we are open for general discussion. In order that we might use our limited time as efficiently as possible, we will first discuss the subject of whether or not we should have some system of seed certification for red clover, and then we will take up the details of certification.

In the discussion which followed, the members of the association brought before the meeting their clover problems which were largely answered by Dr. Pieters and Mr. Eppley. The general opinion was that farmers both from the Eastern and Western Shore wish to continue growing red clover, and they felt that it was essential to have seed that would insure a crop year after year. If seed certification would give them a high quality of seed, then they thought it would be worth while to develop a system of seed certification. It was further brought out that any system must be such that it would not materially increase the cost of the seed to the consuming farmer.

The question of weed tolerance in red clover seed for certification was discussed, and it was the opinion that a small

amount of ripple might be allowed, but that dodder should be carefully guarded against. Some of the farmers felt that they were not afraid of weeds because they had in the past even been able to rid their farm of Canada Thistle. Mr. Mat. Harding, from Cambridge, Maryland, very well summed up the theme of this discussion when he said that "what the farmers need was seed that would grow and give large yields, for in the past they had lost considerable money because of unadaptability of seed, and that if seed certification of red clover would work toward this end and do what it has accomplished in the certification of wheat, that efforts should be made to develop a system of certification in this state."

Business Meeting

The business session of the association was held near the close of the first day's meetings, the chief item being the election of officers for the ensuing year. Considerable discussion was given to the means of securing larger supplies of home grown red clover seed, and plans for certification of the same.

The report of the nominating committee was accepted, which resulted in the election of the following officers for ensuing year: President, Mr. M. P. Prough, Sykesville, Maryland; Vice-President, Mr. Tobias Zimmerman, Adamstown, Maryland; Secretary-Treasurer, Mr. J. E. Metzger, College Park, Maryland; Assistant Secretary, Mr. F. W. Oldenburg, College Park, Maryland; and member of executive committee to Farm Bureau, Mr. Lawrence Ensor, Sparks, Maryland.

ALFALFA PROBLEMS IN MARYLAND

(Joint meeting—Crop Improvement Association and the Dairyman's Association.)

By J. E. METZGER.

This meeting was planned especially for the dairymen. They as a group are perhaps more interested in alfalfa production than are the farmers of the state in general. However, the records do not show that the dairymen are growing as much alfalfa in relation to their total hay as are some of the other farmers. Growers in the dairy counties use about 17 per cent. of their improved land for hay. Of the total hay acre-

age in these counties, 6 per cent. is in alfalfa, 18 per cent. in clover, 18 per cent. in timothy, 52 per cent. in clover and timothy mixed and about 6 per cent, in annual legumes. In the tobacco and truck counties only about 6.5 per cent. of the improved land is used for hay. This acreage consists of about 7 per cent. alfalfa, 19 per cent. clover, 12 per cent, timothy, 29 per cent. clover and timothy and 17.6 per cent soybeans and cowpeas, and 15 per cent. other hay, including wild hay and grains cut for hay.

The dairymen as a group are depending largely upon timothy and clover mixtures. Since clovers fail frequently they must be depending largely upon timothy as a hay. They have not used alfalfa and soybeans as extensively as they might.

There are some questions that are asked more frequently than others concerning the growing of alfalfa. These questions are:

First. How long will a stand of alfalfa last? The experimental data show that on the average a stand will last 4 to 5 years on a shell soil, 3 to 4 years on a limestone soil, about 2 years on the sandy Coastal Plain soils, and 2 to 3 years on the other soils of the state.

Second. May alfalfa be grown in combination with other hay plants? Alsike clover is perhaps its best companion hay crop plant. It may be grown as a mixture of timothy, alsike and alfalfa. In the latter case the timothy will not be fully mature when the alfalfa must be cut.

Third. May alfalfa be planted with a grain crop? Many successful stands of alfalfa in mixtures have been secured by planting 4 to 8 pounds of seed with the clover in the spring of the year. Some of our most successful stands of pure alfalfa are gotten by planting in the spring of the year and in a stand of winter barley. This question involves also the question of growing alfalfa in the regular rotation. Briefly, it seems profitable to do so, but we have a grower present who has solved this in a different way.

Of course, we still have the questions relating to lime, fertility, drainage, sources of seed and time of planting. The queries just given, however, are the most frequently asked. The suggestions which I have made represent the conclusions

from our experimental tests. Since there were more than a thousand of these fields they perhaps represent average results fairly well.

No one is better qualified to tell you about the management of an alfalfa crop than Mr. Daniel Pierce. He has grown much alfalfa and I am going to ask him to tell you about his success with the crop.

MR. PIERCE: My plan has been a little different from that used by some of you. I try to keep as many cows as I can on my acreage. We now have 225 acres under cultivation. This we farm in two different rotations. On the one we grow alfalfa and silage corn, and on the other we grow corn, wheat, and mixed hay or pasture. Thus every year we have about two fields which need to be reseeded. We always plant our silage corn the last part of April or the first week in May, then begin about August 15, to fill the silos. As soon as we get the silage corn off, we disc harrow the land and then seed the alfalfa.

Each year we manure our alfalfa. Alfalfa grows so rapidly, and with our method of cultivation, weeds do not get very much of a chance on our farm. The first year that we set a field of alfalfa this way, we top dress the field with Nitrate of Soda, 100 pounds; Acid Phosphate, 100 pounds; Floats, 100 pounds. Since then we have never used the Nitrate of Soda, because we have had good results without it. The Floats seem to dissolve something in the soil that the alfalfa needs, and makes it easier for alfalfa to get it. It is rather difficult to buy floats on the market. We never pasture the alfalfa fields. We have two other fields which are in grass which we use for pasture. This in brief is the way we secure our stands and manage our alfalfa crops.

Q. Do you use Acid Phosphate alone?

A. We did at one time. I would rather use the untreated Phosphorus.

Q. How many pounds do you use to the acre?

A. About 200 pounds. We have nine acres that we top dressed in December. That crop was seeded in August.

Q. What type of soil do you have?

A. Mainly the loam type.

Q. It isn't the lime stone?

A. No.

Q. How often do you lime?

A. We lime every time we sow the seed.

Q. What do you call a light coating?

A. From 500 to 1,000 pounds.

Q. How long do your stands last on the average?

A. We expect to mow a piece this year that is nine or ten years old.

Q. Does the top dressing require you to use fertilizer every year?

A. No, not fertilizer, but all the manure that we can get.

Q. Do you try to get seed from any particular place?

A. We usually try to get seed grown in the same latitude as we live in. We always use the common alfalfa.

PROF. METZGER: I think you will agree with me that we picked a good one to start the discussion. I will now ask Mr. Hibbard to give his experience in alfalfa growing.

MR. HIBBARD: I can't say that I know very much about growing alfalfa. Of course, we have been growing it for about fifteen years. We have had some failures during this time. We like to follow out a wheat or vetch crop with alfalfa—something that comes off early, so that we can prepare the land in June or early July, and then get our plantings of alfalfa about the middle of August. We put in alfalfa, red clover and alsike, and sow them together in the spring of the year. These we put down at the end of one or two years. We need some clover for the feeding of our calves. Our experience has been that we get too many weeds when we plant alfalfa in the spring of the year. We have had much better success when we plant in the fall. We use western seed, which by the way, is not as good as it ought to be.

Q. What method do you use in curing alfalfa?

A. We let it wilt, rake it with a side delivery rake, and load it with a hay loader.

Q. Do you find that raking up alfalfa before it is altogether cured, that it will cure as fast in the wind row as the other?

A. My observation is that it is seldom necessary to turn the wind rows unless the weather is very inclement.

Q. How often do you cut?

A. We cut three times a year.

Q. How long do your stands last?

A. A good many folks make three cuttings a year without fertilizing. Under these conditions the stand will last about two or three years. We use large amounts of Acid Phosphate and manure. Our stands last much longer than three years.

PROF. METZGER: These are some of the best managed alfalfa farms one would hope to find in the East. We will have time for at least one more, and I am going to call on Mr. Zentz, because his methods are somewhat different from those which you have heard.

MR. ZENTZ: I was one of the first "fools" as they called us, to plant alfalfa on cultivated soil and it was hard work, too. We harrowed up our soil and manured it and limed it. We used, I think, about 20 pounds of alfalfa seed per acre, but we had a most excellent stand, and it lasted about seven years. In part of that first piece, I top-dressed it, and it showed wonderful results. That went on through a number of years before I ever knew any better method of handling alfalfa than sowing it in the fall. One year I sowed in the spring, and I have been practicing that method ever since. I usually seed about the first week in April. One of these stands is now seven years old. I run a smoothing harrow with the teeth set well forward, over the wheat ground ahead of the seeding. Generally, we use about nine or ten pounds of seed to the acre. We also use a top dressing of manure. One six year old piece has been averaging about two and one-half tons to the acre. I believe that alfalfa is a solution of the dairy problem. I believe every farmer should sow alfalfa.

MR. PRESIDENT: I am sorry to say the time is up, because I know you have not touched on all the problems. I am very glad for this testimony that has been given for planting alfalfa in the spring of the year in with the wheat, because alfalfa is cheaper than clover seed has been during the past few years.

PROF. METZGER: I want these young people who are here to see the man who has probably had more to do with alfalfa in its beginning in this state than any other Marylander. I

think we can well call Professor Taliaferro the Father of Alfalfa Growing in the state of Maryland.

PROF. W. T. L. TALIAFERRO: *Mr. Chairman and Gentlemen*: The Mohammedans have the idea that when a man dies, before he can reach Paradise he has to cross over a gulf on the sharp edge of a sword. If he has done a great many good deeds and spoken a great many kind words, those deeds and words form a cushion between his feet and the sharp edge of the sword, and conduct him safely into Paradise. But if he has done a great many wicked things, the sword becomes still sharper and he is cut in two and falls down into Hades, in the gulf below. I feel that I am very much indebted to Professor Metzger for the compliment that he has paid me in saying that I had something to do with alfalfa in this state. I feel exceedingly gratified that the feeble efforts which I have put forth have seemed to merit such recognition along with the efforts of others in the starting of alfalfa as a paying crop.

And I hope that when I cross on that sharp sword, that my alfalfa work will come as a cushion between my feet and that sword and enable me to safely get across into the haven where there is peace and happiness and where there is cream and honey in abundance.

MR. PRESIDENT: We have been discussing this matter of alfalfa thoroughly in our meeting, and judging from what we have heard here this morning, there are a great many factors which enter into securing successful stands of this crop. Personally, I have secured my best stands from spring planting where the alfalfa has been planted along with some other crop. I believe much depends upon the planting of good seed, and the soil in the right condition. All of us dairymen should plant alfalfa on our farms, and furthermore, we should learn how to keep it there. It will help us to produce milk more economically and of course, we as farmers, should always be figuring on methods of producing milk as well as other products as cheaply as possible.

REPORT

OF

Twentieth Annual Meeting

OF THE

Maryland State Dairymen's Association

Baltimore, Maryland, January 6, 1927

The twentieth annual meeting of the Maryland State Dairymen's Association was held at Baltimore, January 6, 1927, in conjunction with the Maryland Crop Improvement Association.

The meeting was called to order by President R. S. Snader at 10:00 o'clock. Mr. Snader was the first speaker.

PRESIDENT'S ADDRESS

BY R. SMITH SNADER, New Windsor, Maryland

Ladies and Gentlemen:

Now, gentlemen, I am sorry that my old voice isn't much better than it was last year. It seems a little better, anyway. My throat is better and I can swallow better. I don't want to brag any, of course, but when a man gets along in years, getting near the half century mark and anything like this happens and he improves from it he just sort of likes to talk about it.

Now, I am 50 years old and I used to have two places up there in Carroll County and I had some hired hands on one place and there used to be a time when if I wanted some help over on my other place my voice was in such shape that I could just holler to them and they would come and help. So it is unfortunate indeed when a man has been in such condition and then loses his voice. Of course, it all came about from a hard spell of pneumonia which I had three years ago. I want to say that there was a period of about three weeks when I didn't know a thing about what happened, and so you can just imagine how sick I was.

The whole nervous system of my throat was broken down but the doctors tell me that nature has provided a method to build up this nervous system and that it is just a question of time when my throat will be all right again.

Therefore you can see what shape I have been in. But for all of that I am still a dairyman. I have been in Maryland for a good many years and early in the morning I am under my cows milking them, long before I come to Baltimore. Sometimes the fellows around the office laugh at me, when I tell them that I don't believe I have missed milking of a morning for many years, except the time that I was ill.

But if I didn't get under the old cow and milk her every morning I wouldn't think that I could maintain my position—I would lose caste as a dairyman.

Besides I don't feel that I could maintain my place without the cow. I'd be out of things, because I tell you when you are on the railroad or riding in an automobile as I do each morning you can usually tell the places where the cow has been taken away—the place is all run down. You can easily identify everyone of them!

We have a wonderful organization in our coöperative. I didn't always realize it but it is a wonderful organization, indeed.

I don't know of any word in the English language that seems to mean more than coöperation. Everything that is a success at all is based on coöperative effort, even our bodies. Coöperation is as old as civilization—is, in fact its origin. I have heard that word "coöperation" ever since I was a schoolboy, and I want to tell you men that the time has come when it is necessary that we coöperate. The time has come when we must coöperate in order that we may market our products to the best advantage. I like the working of that arrangement whereby we hold these meetings and discussions in coördination with the Farm Bureau.

I know that, of course, the Farm Bureau is made up of local units out in the counties and also of the other federated organizations under the Farm Bureau. I like that word, because it doesn't matter how many organizations we have; they are all working for the best interests of the farmer. I feel that it is our duty to the State Fruit Growers, the Tobacco

Growers, the Poultry Producers and the rest, to coöperate with them. But the business we are following is a different proposition, while leaving room for coöperation, still we are a special group, engaged in a highly specialized industry and we have to work along certain distinct lines in order to market our products. When they began to organize we felt that it was the proper thing for us, also, to organize and show the coöperative spirit. Now most of you, who heard Secretary Jardine's address yesterday, will, I think, agree with me that it was a wonderful address.

In that address of the Secretary of agriculture, for years, there has been included, invariably, something that we can take back to our homes; that we can digest; something that we can ponder over and can put into practice along with our coöperative work. But I don't know that I feel any bigger this morning, than I did yesterday, in regard to what Secretary Jardine said about the Maryland State Dairymen's Association here in the State of Maryland. He called attention to our State Dairymen's Association as standing out and being one of the associations at the top of the ladder. Now of course that makes us feel good and feel that we can help, etc., but it doesn't prop us up, because it gives to our association a large part of the credit that belongs to the folks back home, for you know that if we could not have had their coöperation it would be impossible, or would have been impossible to build up an organization like we have.

Now, I know that it is hard for you people to listen to me with my bad voice, and we have other people here with good voices and they have come to talk to you people this morning, and I just want to express my appreciation of the good coöperation that the dairymen have given, and I want to say to the others who are not members of our organization who for some reason or other just don't feel that they have been treated right in some way or other, or if they want any information, we are glad to give you any help or information you want at any time, and if you, either members or otherwise, have anything in your system and want to get it out, and you want to get set right, talk with us at any time, the same as you would talk to a neighbor that you are trying to

help. But if you get some little grudge or something and go around talking to others about it, the first thing you know you will have half a dozen others feeling the same way about it, so if you will just come in, right to headquarters, and tell us about it, I think that we can set you right. Our aim and motto has always been to give every man a square deal and we hope that you will reciprocate. I think if you will investigate our record, and the data that we have in our office you will see that everybody has been treated alike.

I thank you for this opportunity of saying a few words to you. I want to add that whether I should be your president another year or not I will still be an association member, and if I am here another year you will find me right in the same old place. I thank you. (Applause).

Now, then, the next thing on our program is the report of our Secretary-Treasurer. Of course Mr. Heaps always makes his annual report at our annual meeting, which is in August. I will just have him make us a brief report this morning. I don't know just how he has got that arranged.

SECRETARY-TREASURER'S REPORT

BY I. W. HEAPS

Mr. Chairman and gentlemen:

I am glad to see so many here this morning as there are, but I don't know as I notice so many of the fellows who did their milking this morning, and I don't blame them for not being here. I expect there are a whole lot of them who haven't been able to attend the annual meeting and would like to hear something of what has been done. I see that I am on here for a report, but I can't give you the annual report. Up to this time, however, I can give you a report of the amount of the products we handled during 1926 and the amount of money received for it, but there won't be so much detail to it.

It is unfortunate that our fiscal year ends on the 31st day of August. It complicates our reports a great deal, but it so happens and we will have to make the best of it; or else change it. The first column on these tables here shows the amount of milk the Maryland State Dairymen's Association has handled

in the past three years and the increase in production and consumption.

Now, we hear a great deal said about "surplus milk." That is a word that ought never to have been used with reference to the excess of milk we have; that is just as useful and necessary as our standard amount of milk which we have. There was a time when we didn't like to get so much of it and now we don't have so much of a surplus. I think if you will follow the trend of production and sales you will see that the sales of milk went up many years before you began producing what you could really call an excess supply of milk. It won't be many years more until you people won't know what surplus milk is.

In 1924 we had 19,716,442 gallons, a daily average of about 53,870 gallons for that year; in 1925 there were 20,555,090 gallons, or an average of 56,315 gallons daily; in 1926 we had an increase to 22,145,471, or an average daily production of 60,672 gallons. Now, there has been a steady increase in consumption—that is, so far back as we have any actual record. We had in 1924 sales amounting to 15,678,942 gallons; in 1925 17,581,396; in 1926 they increased to the still higher figure of 18,694,245. Those figures of course are all gallons. Now, you will note that there has been the same steady increase in consumption. Our production hasn't been altogether keeping pace with that consumption. Now we have over here what you call "surplus milk," but I prefer to call it, rather, excess milk. There are various factors which control the production of milk and determine whether there be an excess or not.

One of the most important of these factors is price. One year the price was high and the result was one of the most destructive surpluses we have ever suffered from. That ran to 4,731,700 gallons of milk. In 1925, 2,963,694. That went down, you see, in 1925, with the best market and the most normal production; in the year 1926 we had a surplus of milk amounting to 3,619,413 gallons, which almost flooded the market of the farmers.

I mention this, men, to give you as nearly as possible a picture of just what is taking place both in the producing end of the dairy business and in the same sense, you will understand

the fact that your production isn't increasing any faster than the consumption—and that is what decides the surplus. Now that will probably go on until you have reached the point where you are producing the amount of milk you desire and we must look about for a way—not to dispose of our surplus but to produce more milk. And it is going to be a very short time, under our present producing methods unless there comes about some reaction due to poor business, or labor thrown out of employment and general hard times should take place. That, you know, also has a great deal to do with the consumption of milk.

I am mentioning these facts in order that you may see a ray of hope in the future. It is perfectly human that if a man has 40 gallons of milk and he was getting 33¢ for 30 or 35 gallons he would like to get 33¢ for 40 or 50 gallons. Now that is perfectly normal and the time is coming when it is going to be just as necessary for us to produce an excess of milk as it is for us now to undertake to produce an even 100%.

You may have one gallon of milk extra, yourselves, and you may think that that is nothing in a great big market like Baltimore, but you must remember that the other fellow has also one more gallon or possibly 2 or 3 or 4 gallons extra and he will think that those are nothing. But you all send in your extra milk. Sales are increased temporarily but your market goes off on you and hurts you and hurts the other fellow. In October and November, 1925, we had a very dangerous market; it was just all that we could do to keep the dealers in the Baltimore territory. They were almost certain that the local producers had failed to fit themselves to supply the Baltimore market. There was quite a tendency to get out into the states. Now, that was on account of the "T. B." test. Then along in December the supply began to come back, and it came back with a rush.

We had 42% of excess, amounting to about 600,000 gallons of milk per month in the difference between the amounts. In other words there was an excess of 20,000 gallons a day, while the consumption was running practically steady. We had this here, and something had to be done. We undertook to correct that situation without testing the milk. There was a clamor to put on new averages. This failed. We had an idea

that the price of milk ought to be increased—that we didn't believe the price of milk was sufficient to maintain the supply of milk during the year. If we undertook to increase our shipments we could flood the market and be sunk within three or four years time. So we are not making a new average but we are trying very hard to maintain the old average. Now, each producer was to maintain his old average as nearly as possible. He was informed that he must retain at least 80% of his old average. If he lost more than 20% he would be "out" and those who produced a surplus would get their proportionate share of the increase that was lost by other producers who failed to maintain their average. I think it is the most sound and feasible plan that I know of, by far, and has the advantage of being fair to all the producers. We took nothing without his consent, we gave nothing to anybody until we had it to give and up to this time we didn't have anything to give; but now that you have given us something to distribute we are distributing that to the shippers who produced a surplus during the three fall months.

Now we came very near doing the same thing this fall that we did before, which got us in trouble. We are now on the same curve that we were on a year ago. We are headed for the high peak. Now, had we produced that amount of milk in the previous fall what would have happened? Or suppose we had had only 20% excess? Now we are approaching the point where we won't have a gallon too much of milk and not too many cows and we will not be worrying about our quantity then; we will then have to start over here and consider a new row for grades. It is just like going up a high hill on a concrete road. When we reach the top of the hill we are at the peak of production and the market is at its peak.

Now that is what we are working for and that is what we have got to get. Here is the market that belongs to you and we can't tell you how much milk you have got to produce. We have only been able to market it as you would produce it and we can't afford your accumulating a surplus to back up and flood the market.

We have now another problem. The Health Department has put into effect on January first some proposed regulations on cream that they have asked in the past, on other milk.

That cream must be made from the same milk that is now going into the bottles. There is an additional market for us and it is up to us to maintain it, and if we can get that cream up to their standard the producers can ship milk today and cream tomorrow, because the milk that doesn't produce cream is still perfectly eligible to come in as good milk. That means that the milk that comes into our market and is used for cream purposes can be used only for milk; when we are filling our bottles with the pure milk itself we would undoubtedly cut off the cream consumption as we would find the consumer taking the top off the bottle of milk and not buying any cream. We want all our products sold that are possible and if that comes about I think that we will be able to get a fair price for our 20% excess throughout the year. That will bring the farmer a fair average price. Then for any surplus above that he will get standard prices. But I doubt seriously whether under these new marketing conditions he will have any great surplus. I see, therefore, no reason why we shouldn't continue to maintain our old average for the milk throughout the year, and supply the dealers as they want to be supplied. I feel no hesitancy in admitting that times have changed and unless we meet these changed conditions we are losing a big chance.

There is just another point or two I would like to make; I am on today for two reports but if you can stand it twice, that's all right. I have to say the same thing both times. But I am afraid some of you will not be at the meeting this afternoon, so I want to tell you particularly about two things that we are proud of. The first is addressed to people who have been sending their product to other markets. I don't want to be considered as bragging but I believe that we have worked out here a plan in this market that comes more nearly to controlling the supply of milk than any other stabilizing method I know of. A surplus of any kind is injurious to a product. It is always the surplus which destroys our market. By the system of averages we avoid that and we see no reason why our present plan of control should not go on and continue to work out in the most profitable way to the producers. As you know, we have this system of averages under which you can only get paid for milk up to such and such a high quantity, and then after that you don't get so much. Now, then, this fall, we put a stick under you people—we told you:

"If you don't produce more you lose money. You are down to 80% of your scheduled average." You can go down 20% or up 20% without damaging your profits, so you see we have really given you this leeway of 20% above and 20% below, to work in. A total leeway of 40%.

Now we have quite a lot of shippers who went quite a way below their average and some who went the other way and that system rewards a man according to the amount he is able to produce, which is the logical method.

Now the other thing that I want to mention, you members who were with us when we first started in, will remember that we found out the necessity of having a sufficient financial reserve. This is something that most of you have known all along although it is probably something that has not been made known in a public way. In order to attain sufficient finances, we set up a fund that when it reached a certain standard, should be used to back us up financially. We set $500,000 as a permanent reserve and I am glad to report to you today that our organization has reached that point and we have plans perfected to put the machinery at work so that sometime in 1927 each man will receive the unexpended part of his brokerage payments that will be returned to him in the form of checks, beginning with the oldest ones, first. We will begin paying off the 1921 reserve first, for it was in 1921 that we started to build up this reserve. We have kept an account of the amount of milk shipped in and the amount of brokerage paid in and we found out how much was paid into our reserve each year and whatever per cent. that was of the total collected will be paid back to each individual shipper in the year 1927.

As I say, we will take the year 1921 first and pay off the brokerage and that will practiaclly leave our reserve intact and we will practically have a five year revolving fund. Thus no matter how much each shipper pays in, it will be returned to him or his heirs, five years later.

I realize that I have rambled over a wide territory, but if there are any questions you would like to ask I will be glad to try to answer them.

THE CHAIRMAN: I am sorry that our time is so limited here this morning but it isn't so limited that while we have Mr.

Heaps here you can't ask him any questions; therefore, if there is any question in your mind that you are in doubt about, it is your own fault if you don't put it up to him. One idea that we had in having this report today was that it might bring out some of the ideas that the members have. We thought that if any of you had any points that you wanted to bring out this would be a good time to present them, and judging from his talk I think that he was in shape this morning to have gone into almost any problem that you have.

ROUND TABLE DISCUSSION ON "CARE AND HANDLING OF MILK ON DAIRY FARMS"

Led by I. W. HEAPS

First of all, I am asked to make a few announcements. The Secretary of the Farm Bureau Federation has asked me to announce that the second general session of the association will be held at the Alcazar Auditorium on Cathedral and Madison Streets.

Those who desire banquet tickets will please try to get them between the close of the meeting this morning and the two o'clock meeting.

Now, we have had a very interesting meeting, so far this morning, and I hope the remainder will be as successful. We are living somewhat in an age of balanced rations, you know, both from the standpoint of food and in the transaction of business and everything else. Now we have made just a little bit of a mixture here today in making up our program. We have talked about alfalfa which is one of the best dairy feeds for producing milk and then we have a subject on the program regarding the care and handling of milk on the farm, which is very important. Then we have a discussion on the market for milk. In making up this program we thought it wise to take a little time for free discussion because it is very important, and probably very few of us realize just how great a loss is sustained by all of us just by the lack of proper care in the handling of milk on the farm.

Just to illustrate that point, I have here some figures which I got from the Health Department for the past year and some of you will be interested in seeing what happened to some

surplus milk. There were 86,399 gallons of milk condemned either in the city or on the farm due to lack of facilities for the proper handling of that milk. Now if we figure that up in dollars we find that we have lost $23,193.69. That is surely an item that we should be concerned about. That was practically all lost by lack of proper care and facilities in handling our milk. Now, that amount of money would have bought 2,898 tons of ice at $8 per ton and if we had used that much ice, believe me, we would have had some mighty cold milk.

I mention these facts to bring out the importance of this one problem to dairymen. We are not concerned today about high temperature in milk but we will be, again, before many months roll around and this is surely the time when we should take into consideration the problems that will confront us when we do again have this proposition of high temperature and the accompanying high bacteria count. If we are not so located as to provide ourselves with a supply of ice, the next best thing is to utilize our spare time and money to equip our dairies with the best facilities possible to cool and care for that milk.

You might be surprised to know how many men attempt to go through the hot weather without any equipment, or practically no equipment for the keeping of the milk. We found in checking up on the men who have been excluded by the Health Department, that we often find people who have no equipment whatever—that they simply milk the cows and set the milk in the water and the water, maybe, comes about half way up on the can, and leave it there, maybe overnight, and the temperature increasing all the time.

A man is worse off, to do that, than he would be to not try to produce any milk. Because then he wouldn't be going to all that trouble. It seems to me that this dairy industry has developed to this point, that, like any other commodity, we have to sell our product on quality, and the higher the quality, the higher the price. If we have a higher quality of milk we are going to have a better return for our efforts.

Now, the cow doesn't eat any more feed and it isn't going to cost us any more to keep her, and have our products in the best possible condition, and thereby receive this highest price, than it does to have a cow and feed her and then handle the

milk in a careless, haphazard way. We must look out for the quality of our milk or we will never be able to get the proper prices for our products. The consumption of milk in the city is going on today at a very rapid pace. It has increased very largely due to the high quality of the product.

The Dairy Council couldn't go out and make themselves known as your representatives and make the contacts that they do and face the people who buy and use their product unless they could at the same time say it is a safe product. It is so recognized, not only by this market but by other markets, but still the standard of our product isn't so high but what we can make some little improvements.

It is very discouraging and depressing to find 133 producers excluded by the Health Department for one cause or another. Now, there is something wrong and it is our business to correct it. Not mine, and probably not yours, but it is up to the individual producers—that is their job.

Now we have this subject up this morning and I was to open it. I have tried to do that but I think we could all gain a good deal if everybody would feel free to give his experience in handling that problem. Probably none of you here have had trouble with the Health Department, but if you have, I have stated before that it wasn't a council problem to correct that matter; we can't correct it. In most cases these troubles occur where it would be just a matter of very little trouble, and very little, or no, expense to correct that trouble. But that isn't done and it winds up at the end of the year and on figuring up you will find that you have a loss which could have been avoided. Now, I don't feel like calling on anyone especially but I would just like to have you let us have your experiences. This is a round table discussion. Just get right up in your seats.

Q. Do you see any advantage in producing certified milk, in which there is a limit of 10,000 to 35,000 bacteria?

A. (By the Chairman) Some certified milk is being produced, but there is a very limited market for that kind. Of course I haven't any desire to dicourage anybody who wants to produce that kind of milk, nor do I know of any reason why it should not be done. But I know some people who

have produced it and they say it is a pretty expensive proposition to follow up, this production of certified milk, and then after you got it properly fixed up you might find that the market didn't justify it.

Q. What would be the market price?

A. I don't know. I never have investigated that. I think maybe Mr. Hart could give you some information concerning that.

MR. HART: The great trouble with the certified milk game is the market. It sells of course for around 30¢ a quart but there is no use of producing something that you can't sell. Mr. Shoemaker at the present time takes care of about all that I have sold in Baltimore.

THE CHAIRMAN: Mr. Boescher, didn't you at one time investigate that certified milk problem?

MR. BOESCHER: I did attempt to do so but I soon found the Health Department was against me; you can get into it, anyone can do that, but the thing is to know what you are going to do with your certified milk. If you produce certified milk, the thing of it is, "Where are you going to find your market?"

THE CHAIRMAN: Let's hear from a number of people. There isn't a producer in this room but what knows something about this proposition.

Q. Mr .Chairman, on another subject, in regard to this condemning of milk, why couldn't we arrange it so that it could be condemned right at the receiving station, rather than to have to come to Baltimore. Why couldn't they fix it so that we could save a little money on the transportation charges, instead of hauling it clear here to Baltimore and then having to haul it back?

A. Well, I guess the main reason for that is that they have no legal right to condemn that milk until it enters Baltimore city. When they first started in the idea was to have it condemned, if possible, right at the station platforms, the trucking or railroad platforms, but a couple of the inspectors had trouble, got into a fight with producers and got knocked down, so the Department gave it up.

Q. Now, last July, I had occasion to send my milk on a truck and that truck was an hour and a half late and the

milk soured up before it got there. Baltimore, of course, condemned that milk when it was received. Now, if that milk could have been condemned at the starting point, I could have saved my freight on that and might have taken it home and made some use of it.

A. That may be possible but we must not overlook this fact, that we do sell this milk F. O. B. City, and right or wrong, we are held responsible for its condition on arrival in the city. Then, besides, it would take a lot of inspection. There would have to be an inspector at each little station and you couldn't have a man to say that your milk was just so, in order to place the blame where it belonged.

Q. But what I mean is this. Don't you think that the great amount of hauling of the milk causes it to be jostled around right hard, so that if the milk was in proper shape when it was started, after being exposed to high temperature and jostled, it might churn some?

A. Well, I don't know. If it churned it might show, instead, that the milk had been at too high a temperature when it left your home; if it left your farm at a temperature of 60° or lower it wouldn't churn in the course of transportation.

I think that the Health Department deserves wonderful credit for the progress they have made in laying down principles for the care and handling of milk but I think that there is too great stress laid on the product itself; in many cases it is arbitrary. We may produce a clean, wholesome milk and deliver it here and when it gets here they won't let it be sold at the temperature we have in it. I would like very much to see a provision exist whereby a man who kept a clean barn and healthy cows and produced milk that was just right would have a chance to conduct his dairy without interference, and I see no better way to do that than to produce a marking system for the condition of the dairy, the condition of the cows and of the man who handled the milk, and to raise the actual quality of our milk rather than checking up the handling of our milk—and say that the methods we have for handling our milk aren't properly sanitary, etc.

REPRESENTATIVE OF HEALTH DEPARTMENT: I might say, gentlemen, that the Health Department brought out a scoring

system, probably 18 months ago—at least that long ago, but we haven't quite reached the point where we felt that we wanted to act upon that scoring system, because of the fact that you have so many people who are in trouble under our present regulations. They were handling milk that reached only a certain scale. There is one thing about the scoring system proposition. There can be, undoubtedly, a high scoring barn and stables and yet from some barn and stable group that doesn't score quite as high there can be just as high quality milk produced, and maybe, even, a higher quality. General appearance, of course, in scoring a place, does count for a great deal but as a matter of fact the actual quality of the milk isn't affected by an expensive barn and dairy equipment. There is so much of that kind of thing that depends entirely upon the man who is handling the milk. The time may come, and I can see no reason why it should not come when we will get on to a plan where we can have a scoring system. I don't know that Washington has gotten so far with it, only in name. I think it is conceded that New York has a good average, with all their regulations and scoring.

Yet they haven't been able to attain perfection. Of course there are certain dairies which pay a premium for a certain scoring but considering that they require a steam boiler and other things like that, most of you probably would't get enough in view of the expense involved, to justify the expenditure.

And after all I don't think that their prices for the product are so much higher so that you see the Washington market isn't any better than Baltimore, when it comes right down to the bacteria count or content, and your scoring card result. Suppose you have a barn on your property and you are very proud of the condition and appearance of that dairy barn, and the inspector will say to you, "You have got a fine equipment here; but you could produce just as dirty milk in that barn, if you wanted to, as anywhere else."

THE SECRETARY: It seems to me that the real trouble that we have in this market is not so much the construction of the barns and stables as the way that the milk is handled after it leaves the barn. I think that is where our weak point in this

market lies and that is where we have got to improve ourselves.

I think that there are too many producers who don't have the facilities for taking care of nice milk. I have seen them take that milk out and set it in a tub with the thermometer away up there in the 90s and leave it there over night, getting warmer all the time and then tomorrow morning they will take that milk out and run it through a cooler; those bacteria can stand that all right. You can't freeze them adequately by such methods and the consequence is that you are going to have that high bacteria count, because the bacteria have been multiplying all through the night in the high temperature to which the milk is being subjected.

There was one man who spoke to me about his troubles with the Health Department and he said, "I can't understand why I'm in trouble. I cool my milk." So I went out there to his place and when I saw the method by which he was cooling his milk I didn't understand why he shouldn't be in trouble with the Health Department, or hadn't been in trouble with them before.

He had a surface cooler—a cone shaped cooler and he set the milk in a tub of water over night and then cooled it. I said, right away, "Brother, you have got the cart before the horse." I said, "You have got to cool the milk first and then keep your milk in ice over night and you will be out of trouble." He did that and that was the end of his trouble. He was using the ice to cool his water, night and morning. You would be surprised at how many people are taking pump water to cool their milk with and they don't understand why they have gotten a high bacteria content. I believe that you gentlemen will understand why we have this situation. You know that when it leaves the cows in the barn it is pure—there is no bacteria in it. If the bacteria get in, it is after that. Therefore I think that our major trouble is in the caring for it when it gets to the dairy. I am assuming of course that the pails, etc., are in pretty good shape. If not, you have your source of infection there.

Unless there are some other questions somebody wants to ask me, I believe I see Professor Matt. Harris in the back of

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the room and I believe that he can probably say a few words along the line of the care and handling of our product.

PROFESSOR HARRIS: I believe that there is a question about how to produce good milk with a milking machine. Now, there insn't any doubt whatever, in my mind, that a milking machine is a very good thing, if a man takes proper care of it, and in using it you eliminate some of the principal sources through which bacteria are entering into milk—which is, the cow's udder and the air. If the milking machine is properly cleaned and properly taken care of, the bacteria content can easily be taken care of up to the time the milk is taken from the machine.

The milking machine doesn't eliminate the necessity of cooling milk but it does eliminate some of the principal sources through which bacteria may gain access into the milk. But experience and common sense both prove that it will not do to do any milking on a machine when that machine's own bacteria count is high. Also there should be a skilled operator.

Q. In other words it's the man and not the machine?

A. I think so, yes.

Q. I agree with that. I know of some cases where the milk has been machined and it can only be used for some other purpose than selling on the market. It is a great source of contamination if improperly used. I don't know of anything that can be a greater source of trouble than a milking machine that isn't properly clean.

Everybody who has tried milking machines, hold up your hands. (10 raised their hands).

Now, how many of you have discarded milking machines? (3).

Now, might we not just have a word or so from those who have discarded them, stating their reasons why?

MEMBER: (No name given) I have discarded mine because I couldn't find any economy in using it. My men preferred to milk by hand rather than by machine. I found, too, that it took more time to clean the machine than it took to milk the cows.

MR. WILLIS: I have seen a great many milking machines and I thought they worked all right. I think there is just one

market lies and that is where we have got to improve ourselves.

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the room and I believe that he can probably say a few words along the line of the care and handling of our product.

PROFESSOR HARRIS: I believe that there is a question about how to produce good milk with a milking machine. Now, there insn't any doubt whatever, in my mind, that a milking machine is a very good thing, if a man takes proper care of it, and in using it you eliminate some of the principal sources through which bacteria are entering into milk—which is, the cow's udder and the air. If the milking machine is properly cleaned and properly taken care of, the bacteria content can easily be taken care of up to the time the milk is taken from the machine.

The milking machine doesn't eliminate the necessity of cooling milk but it does eliminate some of the principal sources through which bacteria may gain access into the milk. But experience and common sense both prove that it will not do to do any milking on a machine when that machine's own bacteria count is high. Also there should be a skilled operator.

Q. In other words it's the man and not the machine?

A. I think so, yes.

Q. I agree with that. I know of some cases where the milk has been machined and it can only be used for some other purpose than selling on the market. It is a great source of contamination if improperly used. I don't know of anything that can be a greater source of trouble than a milking machine that isn't properly clean.

Everybody who has tried milking machines, hold up your hands. (10 raised their hands).

Now, how many of you have discarded milking machines? (3).

Now, might we not just have a word or so from those who have discarded them, stating their reasons why?

MEMBER: (No name given) I have discarded mine because I couldn't find any economy in using it. My men preferred to milk by hand rather than by machine. I found, too, that it took more time to clean the machine than it took to milk the cows.

MR. WILLIS: I have seen a great many milking machines and I thought they worked all right. I think there is just one

machine that gives satisfaction, at all. But perhaps I shouldn't say that because that is all that I have used. The results I got even from that were a good way from being satisfactory. A short while ago, I was very enthusiastic but a short time after that I found that the cows had diseased udders from the use of that machine. I discarded the machine, finally, because it was more expensive and I found that we couldn't keep our cows in as good shape.

MEMBER: I would like to say in defense of the milking machine that in 1924, in the spring, I think, I saw a machine working. The farmer there had four men besides myself and we had this milking machine but before we had been using it very long we found that it spoiled a number of the cow's udders. I had personally, however, been very much interested in farming and had used the milking machine and we used it very successfully for about twelve months but I quit using it because of these other men that were working with me. While I would be cooling the milk these men would be sitting out under a tree or somewhere like that, some of them, smoking; some of them laughing at me, and some of them doing nothing. I didn't like that at all, because I was willing to do my part but they were not doing theirs. We used the machine, I guess, for about eighteen months, during the years 1925 and 1926, altogether. The cows were milking pretty good and we found out that it wasn't by any means impossible to keep an excellent grade of milk but the cows can be milked quicker by hand, I think, and then you have the machine to keep clean.

Over in our section I think we have three milking machines and our milk graded A1; I think that all the places in that station produced grade A. And altogether this neighbor of mine had that experience about spoiling the cow's udders, it didn't spoil the udder of one cow. It did increase the reliability of the quality of our dairy product to a wonderful extent.

I think if you can get the proper coöperation you will find that that is the ideal way to do it. It is a far more cleanly way, provided that you can do it properly. But for the ordinary man who just keeps a cow or two as a side line and maybe sells his milk over a local market I think they would

find it more profitable to do their milking by hand, as the investment, there, wouldn't be really justified.

THE SECRETARY: It certainly seems to me that circumstances have so much to do with this matter of milking machines that it is impossible to make any definite rule. If a man has a large herd of cows and only a very few milkers I think the milking machine is, so far as I know, a complete success. We have had one for several years and if a man has help to milk his cows, probably with an average of six or eight cows to the man, I don't know that the milking machine is just as vital, in that case. But if a man has to depend on two milkers to milk 15 or 20 cows, I think the milking machine is advisable.

THE PRESIDENT: I think we have all had our difficulties with it. I have used the milking machines myself. Of course a lot of our members do take a chance on the care of their milk and on the cleaning and care of these machines. Naturally they would have trouble. But in 35 minutes' time the whole thing is done, milking and cleaning the machine and it would probably cost me more money to do my milking by hand. I wouldn't think of having anything else. I think it is pretty certain that in the course of time, all of us who have herds of any size will be using milking machines. It is a great help when you have, maybe, 25 head of cows and you have all the milking to do yourself.

I don't believe we have heard anything from the Eastern shore. We might hear a word or two from them.

MR. WILLIS: Mr. President, I would like to ask a few questions. I am from the Eastern shore of Maryland and we haven't been in the marketing game in Baltimore to any extent and of course we need some help from you fellows up here respecting the game. I have sat here listening to how you fellows cool your milk. Prior to about 1924 we made very little milk down on the Eastern Shore but as time went on and we came on down the line we didn't do much caring for the milk. We just milked and sent it out to the station as the Health Department didn't interfere with us for we didn't send any milk close to Baltimore, but now they have commenced on us. One of the first things I know of that started that—heretofore it had always been the dairies adjacent to

Baltimore and that started in when they first opened up their marketing here and had nothing whatever to do with us—there was a bill introduced into the legislature asking permission to pass orders regulating the milk supply of Baltimore city, and since then I have noticed that as you folks over here progressed in the matter of caring for your dairy products it has been necessary for us to give a little bit more care in the marketing and delivery of our products and to organize ourselves. We are attempting to follow the regulations as carefully as possible.

In order that we can produce an article that the city would receive we realize that we must follow these regulations and we think that they are wise because Baltimore City and other cities have paid and are paying the price for not requiring the people to be more careful in handling milk. Just a few years ago we have been required to build a little milk house separate from our barns. We don't get any ice down on the Eastern shore of Maryland except when we come up here to town and get it but we have been putting our milk cans under the pump and cooling it with water from the well and we do that right in the hottest weather and last year on account of that I think altogether we lost five cans of milk during the summer.

If we hadn't put it into the cans too soon, we probably wouldn't have lost that much. We fill our tubs about half-full and pump by gasoline engine, but in our first cooling we leave the water out and then cool it over night in those tubs. After we have cooled our milk that way we find that we are very successful in keeping the temperature of that milk down to the temperature that it should be. We find that the cooling is, as a rule, even in the winter, a very important proposition. We have to cool our milk carefully, especially as it has to be shipped to Philadelphia, a good deal of it.

Now, over in that vicinity we don't have to have T. B. tested cows. You folks on the Western Shore of Maryland have been T. B. testing your cows since 1910. These fellows in Pennsylvania have that to contend with and they have lost lots and lots of their cattle.

Now, if I lived in Pennsylvania, and we got T. B. reports on our cows and I had lost half of my herd and then after

losing my herd I had gone to the expense of building up another one that certified, as many of these Pennsylvania fellows have, and the State of Maryland, just across the line, was sending in thousands of gallons of milk from untested herds, I certainly would resent that milk coming in and depreciating the tested milk in value, and I would do all in my power to establish strict regulations for milk from outside the state. I have had the matter up in our local Farm Bureau and I hope that we will be able to get some coöperation from the Western Shore to protect ourselves and all the Maryland producers.

As you all know the state used all its funds available for the purpose of testing. I read last night that an appropriation of $50,000 has been asked for to continue that work, and presumably on the Eastern Shore for the condemnation of tubercular cows. We recognize, surely, as farmers and dairymen that we don't get anything that we don't go after. Now if you folks on the Western Shore have been T. B. tested, if you'll come down on the Eastern Shore and help us, I'll be glad in turn to help you. I think we fellows down on the Eastern Shore would all be glad to help you. We would like to get that service down on the Eastern Shore and I am making this appeal to you as fellow dairymen, hoping that you will see the matter from the viewpoint that the state has produced some results and that a great many cows have been destroyed. Speaking from a practical viewpoint again I have heard the idea expressed that the state pursued a wrong policy when they adopted the policy of reimbursing the farmer for his cows that were infected with disease. They will soon have that appropriation exhausted and then it will be up to us to go after an appropriation from the legislature to carry on this work.

Q. Did I understand you to say that you used the gasoline engine to pump your water?

MR. WILLIS: Yes. We use it to cool our milk, by pumping our water into it.

Q. Have you got your cooling house separate from where your gasoline engine is? If not you are liable to have trouble because the regulations say that they have got to be so many feet from any other building.

A. Yes. My gasoline engine is, of course, near the well.

Q. Did that inspector allow you to run your gasoline engine to cool your milk without your engine house being closed up tight?

A. O, no; but we, as a rule, do have the building where our gasoline engine is, closed up tight. Of course in building our milk house we naturally built some little distance from where the well was; the inspector came around there last year and O. K.'d the place. Our little cooling house is about 16 x 16 and we have a place there where we bottle our milk, too. I thought we had a nice little arrangement but in 1925 I found I had to make an extension and make some changes because along in the winter I found out I wasn't making anything; so much of my milk was being shipped back to me.

THE CHAIRMAN: We are very glad to have you gentlemen from the Eastern Shore with us this morning. In reference to the T. B. work, I am sure you will find the Western Shore willing to support you in every way in getting an appropriation and continuing this work on the Eastern Shore as well as on the Western Shore. The Maryland officials have been making a careful examination of the state and they haven't reported on the Eastern Shore conditions as yet. But I want to set one statement right, that isn't quite correct; we have heard things which would indicate that people have the impression that we people on the Western Shore requested this examination. We made no requests for T. B. tests at all. Two years ago, however, we were notified by the Health Department that we must make application for the testing of our herds. That was in 1925. The notification added that if any man refused to have his herd tested he was liable to have his milk excluded by the Health Department.

Now, in all fairness, I think I can say that the majority of our producers have been very much against the T. B. testing. Some men have been practically put out of business and so it wasn't their choice, not from that standpoint. at least. I believe, however, it is safer, and it is probably a good thing, but it is also a disagreeable thing and we like to get over those things and get through with them. We have now secured a better standing in this market. But when you people

down there do commence to get this testing you won't worry or resent the fact that it was put off. You will have plenty of trouble on your hands, probably. You will be just as glad if it is put off for a few years because as a rule we don't mind putting off these unpleasant things.

Of course, now, there is a demand for an appropriation that will continue this work on the Eastern Shore and I know of nothing that is going to interfere with it. It is going to take a push from all of us to get that amount, but if you want it, or whether you don't want it, you are going to get it, eventually.

But I think it would be a crime, after going as far in this matter as we have gone, and the state paying all of this money out of its treasury, to let it drop. It should be finished or else it should never have been started. I think the latter view is correct, myself, but inasmuch as it has gone so far I don't believe the state officials are going to allow it to stop.

A MEMBER: I have a matter of business that I would like to bring up. Those of you will understand it who attended the annual meeting at College Park when there was an attempt made to have a real election of directors when there were two directors nominated from one place. One was withdrawn, luckily. But you can all see the importance of not having those things happen again. The meeting was practically divided into two factions.

Now those things are liable to happen at any time. Of course new conditions are liable to come up at any time and in order to meet them some provision should be made for the proper election of these directors.

It does seem to me, gentlemen, that the state ought to be divided into districts and have directors to represent each district because that will make the individual members feel more like they have some part in the organization of our association, if they can pick their own men to represent them. Each one of these districts should be allowed to have representation, and to that end I think that some plan should be formulated. I would suggest that the officers of this association be directed to appoint a committee to look into this matter.

THE PRESIDENT: I would like to have you make that as a motion.

MEMBER: I move that the president appoint a committee to formulate some plans for the nomination of the directors of this body.

THE PRESIDENT: Now, just let me ask, how would you suggest that I get that committee? Should it be from the membership or appoint a committee of the directors?

MEMBER: I will leave that to your judgment, Mr. President.

THE PRESIDENT: There is now a motion before the house that the President appoint a committee and that that committee devise ways and means by which we shall select our directors.

Do I hear a second? (Motion seconded).

THE CHAIRMAN: I will appoint a committee from our different sections and in this connection instruct them to formulate plans by which it will be possible to elect our directors.

You have heard the motion. All in favor of the motion so signify.

Those opposed. The ayes seem to have it, the ayes have it, and the motion is carried.

Thereupon at 12:03 the association adjourned.

REPORT

OF

Eighteenth Annual Meeting

OF THE

Maryland State Beekeepers' Association

Baltimore, Md., January 5, 1927

The Maryland State Beekeepers' Association was especially fortunate in having Mr. E. R. Root as the principal speaker at their annual meeting. In addition, Mr. Root spoke before the general meeting of the Maryland Farm Bureau Federation. This is the first time that the subject of bees or honey had been presented to the general Association. The opportunity for the beekeepers to get a place upon the program was brought about largely through the insistent efforts of Mr. B. B. Jones and the farsightedness of Mr. M. M. Stewart, the Secretary of the Maryland Farm Bureau Federation.

The usual business features of the meeting were carried over to the subsequent meeting, and after the talks by Mr. Sechrist and Mr. Root, four students from the University of Maryland put on a program of songs and dances, as a diversion from the usual features of our annual meeting.

Following is the financial report of the Beekeepers' Association for the year 1926:

THE MARYLAND STATE BEEKEEPERS' ASSOCIATION

FINANCIAL STATEMENT

From January 7, 1926 to January 5, 1927

Expenditures

Date	Check No.	Payee	Purpose	Amount
12/23/25	76	Virginia Cameron	For Clerical work	$2.00
1/11/26	77	G. H. Cale	Expenses to address Beekeepers' meeting	15.00
1/20/26	78	E. L. Sechrist	Expenses of Dept. of Agriculture staff to address meeting	8.69
1/20/26	79	University Press	For 3,000 envelopes	11.25
2/25/26	80	Dr. Bulger	Expenses to Beekeepers' meeting to make address	3.56
2/25/26	81	J. E. Eckart	Expenses to Beekeepers' meeting to make address	3.36
3/10/26	82	Md. Agri. Society	Dues for four quarters	20.00
4/10/26	83	Carl H. Nelker	Two dozen sections comb honey	6.00
5/17/26	84	S. G. Crocker	For honey to Rennert Hotel	6.00
			Total expenditures	$75.86

Deposits	
By Balance	$72.99
By deposit July 1, '26	28.00
By deposit Jan. 3, '27	39.50
Total	$140.49
	75.86
Balance on hand Jan. 7, 1927	$64.63

At a meeting of the Beekeepers' Association, on April 2nd, the nominating committee, consisting of Messrs. Crocker, Nelker and Kelly, presented the following nominations for officers for the ensuing year. They were unanimously elected as follows:

L. J. HILTGARTNER.....*President*
Phoenix, Md.

LLOYD B. SHERMAN.....*Vice-President*
Glenarm, Md.

ERNEST N. CORY.....*Secretary-Treasurer*
College Park, Md.

J. R. ABERCROMBIE.....*Director to Md. Agr. Society*
3524 Greenmount Avenue, Baltimore, Md.

R. L. PUMPHREY.....*Delegate to Md. Agri. Society*
Marley, Md.

B. B. JONES.....*Publicity Agent*
Carrollton, Md.

STIMULATING THE HONEY MARKET

By E. R. ROOT.

Before the Maryland State Beekeepers' Association Meeting

During the past year several factors have contributed to depressing the honey market not only in the East but in the West. Of the thousand cars of honey that are annually produced in the West comprising California in a good year and the Rocky Mountain District almost every year, there were something like a hundred carloads of honey left over last fall, begging a market. In some cases where loans had been made on honey as collateral, the banks forced sales at very low prices and, of course, this set the pace on all other sales, with the result that the market went down and down. A falling market always has the effect of holding back the buyer until he becomes convinced that the bottom has been reached, and he will not buy until then. This is precisely what happened last fall when the honey market went down to the lowest price at any time since the war.

In the East there was almost an entire failure of the White Clover crop of honey. Only in localities where sweet clover was grown, was any honey secured. Paradoxical as it may

seem, a failure of the honey crop in the East, instead of raising the price of honey, has almost the opposite effect. When the East, comprising a territory east of the Mississippi River, has a good crop, practically all of the honey is sold before the season is entirely over and then there comes a demand for Western honey.

Again, the competition of other foods, jellies and jams, cheap syrups that are widely advertised in newspapers and magazines of national circulation, have the effect of diverting the attention of the consuming public away from honey.

There is just now an economic condition in which the housewife has had to economize in her buying. She is inclined to forget the delicacies in the way of syrups, jellies and jams, including honey, and buys only the necessities. Honey, on the other hand, is not advertised like these jellies and jams of national reputation and, as I shall show later on, we shall have to seek other avenues of letting the public know that we have something for sale.

There is another factor, and that has had some influence in some quarters. There has been some foolish talk about having all honey certified either under federal or state laws for the purpose of preventing the spread of bee disease. The public, not understanding, has jumped to the conclusion that honey may be diseased and, if so, would carry infection to a human being. As a matter of fact, experiments so far show that no germs of disease that afflict the human family will live in honey more than a few hours, or at most, more than a few days. Inasmuch as there is absolutely nothing to be feared along that line, it has been utter folly to talk about certification of honey. In some parts of the country we know how this certification talk has slowed down the sale of honey and almost stopped it in other cases. In the same way, the oyster business near Baltimore was nearly ruined by some very foolish propaganda to the effect that oysters often contain the disease germs of typhoid fever. A year ago last winter, the oyster business was practically paralyzed.

But perhaps the most serious thing that has interefered with the sale of honey is the misconception on the part of the buying public with regard to granulation.

After the housewife breaks the seal of her bottle of honey she is bound to find that it will granulate within a few weeks and when she sees "it going back to sugar," as she says, she concludes that it is brown sugar and, therefore, adulterated. I absolutely know that the housewife feels and talks this way, after having come in contact with something like 500,000 women in my lecture tours with the Redpath Chautauquas.

A few days ago I saw some very fine looking comb honey offered at a very low price, twenty-five cents a section. A closer inspection showed it was granulated solid. The moment the housewife buys this and sees its granulated appearance, she jumps to the conclusion that this comb honey is "manufactured, made out of brown sugar." The housewife needs to have granulation explained by the beekeeper and on the packages of honey.

The Silver Lining to the Dark Cloud

So far, I have shown only the dark clouds, but I think I also see the silver lining that means a better future for the honey business. My organization for several years back has felt that the beekeeper, himself, should help to do something to spread the truth about honey as a food; explain upon the packages that granulation does not mean adulteration, or "going back to sugar." In Canada, for example, seventy-five per cent. of all the honey sold and consumed is in granulated form and there is no talk on that side of the line about manufactured or adulterated comb honey.

Beekeepers in this country are doing good work selling honey along the roadside. In this way they come in contact with the public, itself, explaining about granulation; the purity of honey; its quality as a food and a medicine. This is doing a world of good, as we know.

Very recently my organization was instrumental in getting the W. K. Kellogg Company, the manufacturers of cornflakes, bran food, and other ready prepared foods, to advertise honey on all their packages; recommending it as a healthful and delicious sweet to be eaten along with their bran, cornflakes and other foods. This Company with its vast resources is featuring honey along with their healthfoods in large colored

posters that are on display all over the United States. They are likewise recommending honey on every one of their packages, about one million and a half a day. This will immensely stimulate the demand for honey.

Some of the big baking companies are now using honey by the carloads in making their bread, not to sweeten the bread but to keep it soft and moist. One concern that I happen to know of is using honey in a very large way, and what is more, it is putting out a bread that keeps so soft and moist that it is driving all competitors out of the field.

There are some big candy companies that are beginning to take over honey and making honey candies in various forms.

During the last few weeks the A. I. Root Company has taken upon its editorial staff Miss Malitta D. Fischer, formerly head of the Madison Honey Tea Rooms, Madison, Wisconsin. She has spent something like eight years in the study of honey in combination with other foods. She is now writing a series of articles for the press and especially for Gleanings in Bee Culture. These articles are being widely copied throughout the country.

What the effect of all this propaganda work will be in stimulating a better demand for honey remains to be seen. But one thing is sure, the beekeeper, himself, should do a great deal more to educate the public as to the purity of his product. In many cases, he is bottling his own honey, selling it right in his own locality. It would be very much better if he would see what he can do about selling his honey in his own town rather than to flood the general markets that are already loaded with honey.

HONEY AS A FOOD

By E. R. ROOT.

There have been various estimates as to the amount of granulated sugar that is consumed annually in the United States. Some of the figures are from 102 to 105 pounds per capita; other figures go as high as 148. Let us put it at 100 pounds on a conservative basis. Even then, we're eating fifty times as much of granulated sugar as we are of nature's sweet, honey. Honey is made up of two sugars, levulose and dextrose, and certain mineral elements not found in the highly refined gran-

ulated sugar that has been denaturized of the very properties that we need.

In the same way that we have denaturized sugar, we have denaturized our flour by taking out the bran, gluten, and mineral elements; we have denaturized our corn meal, and our rice. We are consuming enormous quantities, not only of granulated sugar in candies and soft drinks, but of white flour in the form of bread and pastries, of polished rice, and of corn meal with all these essential elements removed.

What does all this mean? It means that there are certain diseases of civilization that our forefathers did not have; that the savages of today, who live on the foods as nature gives them, do not experience. Not only are the teeth of our children being ruined by the candy-eating habit, candy made largely of granulated sugar or glucose, but our digestion is being ruined and many of us are wondering what is the matter with us.

Our forefathers knew nothing about white sugar. The sugar they obtained was brown, contained mineral elements and other useful food elements that our bodies need. Their flour was ground in the good old-fashioned way between stones and contained the bran gluten, lime, iron and other mineral elements. In spite of the typhoid fly and the unsanitary conditions that then prevailed in the form of polluted drinking water, those same people were hardy and a vigorous race.

Honey is the only concentrated form of sweet found in nature. So far as is known, it will not carry the disease germs that afflict the human family. Some work has been done showing that the germs of typhoid fever and other diseases will die in a few hours when placed in honey. This may explain why honey is good for sore throat; especially of the kind that carries infection.

Honey is made up of two principal sugars, levulose and dextrose in about equal proportion. It contains besides all else the mineral elements found in the flowers, vitamins, and is a kind of concentrated sweet that came down through the ages; that means that the digestive apparatus of man was adapted for eating honey, or what is technically called "invert sugar" that has gone through one process of digestion.

The very fact that the sugars in honey are the same as the sugars in most of our fruits is rather significant. The Great Creator when he made the bee that gathers the honey and the trees that yield the fruit, knew just how to make these bodies of ours so that we could take these foods. He did not make granulated sugar, white flour, and a lot of these other denaturized foods that ruin our bodies.

There is not wanting evidence to show that during the last twenty years that dreadful disease diabetes has increased or decreased almost in direct proportion to the amount of granulated sugar consumed. For example, diabetes increased by leaps and bounds until about the time that Uncle Sam put an embargo on sugar so that no family could get more than one or two pounds per family. Then the curve of granulated sugar and diabetes dropped down very rapidly. When Uncle Sam released the ban on sugar so that everyone could buy all that he desired, the curve for granulated sugar jumped upward, and likewise diabetes.

Here is another fact. The disease diabetes is increasing very rapidly among young people. A few years ago it was a very rare occurrence and now that cane sugar has jumped from the rate of seventy-five pounds per capita to one hundred or one hundred and fifty pounds per capita, diabetes among the young people, who are lovers of candy and eat quantities of it, is jumping forward by leaps and bounds.

While it would be going too far to say that there is a direct relation between the consumption of granulated sugar and the occurrence of diabetes in this country, it is fair to say there it at least a suspicious alliance. In view of the fact that doctors and dentists are discouraging the use of so much cane sugar and encouraging the use of honey and of fruit, we should stop, look, and listen before it is too late.

Why not eat more of nature's sweet, the health sweet, honey, and eat less of man's denaturized sugar in the form of granulated sugar and glucose?

HONEY GRADING

By E. L. SECHRIST,

Associate Apiculturist, Bureau of Entomology,
United States Department of Agriculture.

Commercial beekeeping in the United States has undergone a great development during recent years. Many a beekeeper now devotes all his energies to honey production, managing hundreds or thousands of hives of bees and producing tons or carloads of honey yearly. The production of such large quantities of honey in regions where only a small proportion of it can be consumed locally, demands the development of larger markets in the great consuming centers—the large cities.

To handle such wholesale markets satisfactorily, including a developing foreign market which now takes more than five million pounds of honey annually, honey, as is true of all food products, must be marketed according to uniform standards. Realizing this, the Bee Culture Laboratory of the Bureau of Entomology, in co-operation with the Bureau of Agricultural Economics, has established standard Federal grades and grading rules for both comb and extracted honey. Earlier attempts at making grading rules have usually approached the subject almost wholly from the standpoint of the honey producer, leaving out of consideration the demands of the consumer of honey, but, as the consumer is the court of last resort, it is necessary that his desires and the requirements of the dealer in honey be considered, as well as the wishes of the beekeepers themselves.

The effect of proper grading upon the American public and thus upon the market for honey is the most important thing to be expected from uniform Federal grading rules. The use of Federal grades will give a general confidence in the purity and quality of honey which is now lacking but which must be secured before honey can become a staple food product. If confidence in the good quality of honey marketed under Federal grades leads to even a moderate consumption of honey by a majority of the households in the United States, as may reasonably be expected, a greatly increased market for honey

will be secured and the status of beekeeping in the United States will improve accordingly.

The accurate color grading of honey has been made possible, after several years of experimental work, by the development of a color grader whose operating principle is the comparison of a wedge of glass of the proper color with an opposed wedge-shaped trough containing the sample of honey to be tested. When the honey and the glass, viewed through a narrow slot, exactly match in tint, a pointer on an appropriately divided scale indicates the color grade into which each sample falls. Department Circular No. 364, on the development and use of the extracted honey grader, has been published, but will soon be superseded by a new circular covering the grading of both comb and extracted honey.

Clearness, density, and flavor are other points, in addition to color, on which the grades for extracted honey are based.

While the grading of extracted honey is comparatively simple, the numerous points on which comb honey must be graded make the problem a complex one. Not only must the quality and the color of the honey be considered, as in extracted honey, but also the appearance of the comb and of the wooden section in which the square of comb is built. This general appearance, or finish, includes the color of the wax, the smoothness and completeness of the capping, and any staining of the surface of the comb by propolis or in any other way. As comb honey is very fragile, the attachment of the comb to the wood must be such that the honey will endure without breakage the rough treatment to which it is subjected in shipping. As an increasing amount of comb honey is going into export trade, the requirements for overseas shipping must also be considered.

In addition to the requirements for quality of honey, finish of comb, and attachment to the wood, comb honey is also graded as to its net weight.

As though the conditions were not yet sufficiently complex, the requirements for Federal grades must be such that all commercial honeys from all parts of the United States, from whatever floral source, and often varying markedly in appearance, may come within the requirements of the rules.

While the Federal grading rules are only advisory, it is expected that they will be adopted by the several States, work-

ing in harmony, since there are many requests for uniform standards of grading.

In the future, instead of merely producing a crop of honey and then grading it into Fancy and No. 1 to suit the crop he has produced, it will be necessary for the commercial beekeeper to plan his system of management so that he can produce the largest proportion of honey that will meet the requirements of the Federal grades for Fancy and No. 1 honeys, if he is to receive the greatest possible income from his beekeeping. If a sufficient output of such standard grades is produced the public will be able to buy, as a staple, such honey as the housekeepers desire to use on their tables.

REPORT

OF

Ninth Annual Meeting

OF THE

Maryland Vegetable Growers' Association

FIRST SESSION

January 5, 1927

The first session of the Ninth Annual Meeting of the Maryland Vegetable Growers' Association, held at the Hotel Rennert, Baltimore, Maryland, was called to order by President John E. Patten.

In the absence of the secretary, through illness, Professor F. W. Geise read the following report which was adopted.

REPORT OF SECRETARY-TREASURER

By W. R. BALLARD, College Park, Maryland

As a result of the discussion which took place at the last annual meeting as to the future of the Maryland Vegetable Growers' Association, the organization took a new lease on life and enough support developed so that the Association has been able to survive for another year and to function in a more or less satisfactory manner. However, there is still need for a greater number of the influential vegetable growers of the State actively to support the work of the organization and to make it a real force for advancing the interests of the vegetable growing industry of Maryland. It is believed that a permanent meeting place would do as much as any other one thing to stabilize the situation and make it possible to develop greater cohesion among the members.

The monthly Vegetable Growers News Letter has been mailed to the entire membership during the past year and the Secretary trusts that the members have found the contents of

sufficient interest to warrant the small outlay of money required for its maintenance. Suggestions as to how this feature might be made of greater value to the membership are always in order and the Secretary would welcome particularly items of interest from the growers.

The Treasurer's accounts are ready for the inspection of the Auditing Committee. Instead of a deficit as reported last year, the Treasurer's books show a balance of $11.00 on the right side of the ledger.

After a few introductory remarks President Patten appointed committees on auditing, nominations, and resolutions. The following papers were presented.

ASPARAGUS GROWING AND MARKETING IN MARYLAND

By A. D. RADEBAUGH,

Crop Production Specialist, American Can Company

The plantings of asparagus in Maryland for shipment to fresh market have increased from 440 acres in 1923 to 1920 acres in 1926.

During the same period plantings of asparagus in the United States for shipment to fresh market have increased from 21,460 acres in 1923 to 35,630 acres in 1926.

This increase in acreage plantings since 1923 may be attributed to the following causes:

The average selling price per crate (1 dozen bunches) steadily increased from 1919, the peak having been reached in 1923.

This naturally stimulated farmers to plant asparagus, realizing the demand for this product was on the increase and greater profits were to be derived from growing this crop in comparison to other fruit and vegetable crops.

Crowns can be grown on soils of various types. The best soils, however, are sandy loams or light clay loams. These soils are open and porous and facilitate root penetration and elongation.

A fine, well pulverized seed bed permits the soil particles to come into close contact with the seed, insuring a constant water supply and more rapid germination.

It is well known that asparagus seed germinates slowly. Special care should be taken to select land that is comparatively free from weeds.

Early planting of seed is advised in order that the plant may have a long growing season during which to develop a large crown. The date of planting, however, must be governed largely by local and seasonal conditions.

Mary Washington seems to be the leading variety, but a number of growers report satisfactory yields from Palmetto.

The tendency among growers has been to sow the seed too thick. It is doubtful whether more than ten pounds per acre is ever advisable. Where hand cultivation is to be practiced seed should be sown in rows 15 to 18 inches apart. Where horse cultivation is to be practiced usually a greater distance between rows is necessary. It is best to drop seeds one in a place so that the plants will stand about three inches apart in the row.

In sandy loam and light sandy soils the seeed should be planted from one and one-half to two inches deep.

Commercial asparagus growers generally grow their own one year old crowns. There are several reasons for doing this. (1) It usually costs less to grow crowns than to buy them, (2), the grower may have information regarding the seed, (3), there is opportunity for rigorous crown selection, (4), delayed planting can be avoided.

In the sorting, the small crowns should be discarded as well as the large crowns that have a large number of small buds. Large crowns with a few buds are better than large crowns with a large number of small buds.

Asparagus roots should be planted 9 to 10 inches deep. Rows should be 5 feet apart for green grass production and 6 feet apart for white grass.

Set roots 18 to 24 inches apart in the row, the greater distance being required for large growing varieties on rich soil. The roots are placed in the bottom of the furrow or trench and at first covered to the depth of 2 or 3 inches. Soil is added as the plants grow until by the end of the season, the furrow is filled. The filling in of the furrow is done as the land is cultivated. The crowns should not be covered to the extreme depth at first as the young shoots may be smothered before they reach the surface.

Cultivation and hand hoeing should be given as often as necessary to keep down weeds and to conserve soil moisture.

After the first season the asparagus bed should be throughly disked and harrowed each spring. Cultivation and hoeing is necessary to keep down weeds after the bed is established as well as during the first season. In all tillage operations care must be exercised to prevent injury to the crowns of the plants.

Asparagus is a fairly heavy feeder, therefore it should be liberally fertilized. Many Eastern growers apply one ton of high grade fertilizer to the acre using a mixture containing 4 to 6 per cent. ammonia, 6 to 8 per cent. phosphoric acid and 4 to 8 per cent. potash.

The following amounts per acre have proved very successful.

Nitrate of soda	460 pounds
Acid phosphate	300 pounds
Muriate of potash	260 pounds

The season of application does not appear to affect the relative yields of commercial asparagus.

If any fertilizer is applied at the end of the cutting season it should be applied between the rows and mixed with the soil by cultivating.

The asparagus beetles known as the common asparagus beetle and the twelve spotted asparagus beetle are the worst insect enemies of asparagus.

Both may be controlled by spraying the plants with arsenate of lead or calcium arsenate 4 pounds (powder) to 50 gallons of water. Sometimes a single spraying at the proper time will suffice, but occasionally two or three applications are necessary, especially if rainfall intervenes.

The old practice was to cut no asparagus the year after setting crowns into the field. Experiments conducted in Cecil County, Maryland and California in 1925, cutting approximately 100 bunches per acre the year after setting crowns into the field did not injure the crowns, and in fact, more grass was cut from this part of the field the following year. This amount of asparagus helped naturally to pay operating costs for the second growing season in the field.

Heavy cutting, however, should not begin until the third year and may then continue for ten years or longer, provided the asparagus has been properly set, fertilized and cultivated in the beginning. Asparagus is usually harvested every day during the season, preferably in the morning.

Immediately upon reaching the packing shed the shoots should be graded, putting the different grades into bins or compartments designed for that purpose.

The Bureau of Agricultural Economics of the United States Department of Agriculture has established grades for asparagus. For the benefit of growers shipping this crop a copy of these grades follows.

U. S. No. 1 shall consist of clean fresh stalks of asparagus which are not wilted or crooked; which do not show broken or spreading tips and which are free from damage caused by disease, insects or mechanical or other means.

Unclassified shall consist of stalks which do not meet the requirements of the foregoing grade.

In addition to the statements of grade, any lot of asparagus may be classified as small, medium or large, if eighty per cent. by count, of the stalks in any lot conform to the following requirements for such sizes:

3/8 to 9/16 inch	9/16 to 3/4 inch incl.	Over 3/4 inch

The foregoing table refers to the maximum diameter of the stalks measured at a point not more than 8 inches from the tip.

"Free from damage" means that any injury from causes mentioned shall not materially affect the appearance of the asparagus.

After the shoots have been separated into the different grades they are bunched.

Every head should touch the back board and only one grade should be bunched at a time. When the bunching machine is full, the metal clamps are closed by means of a small lever and the asparagus is tied at each end with a special tape or raffia. As soon as the bunch has been securely tied, the butts are cut off even with the end of the bunching machine by means of a sharp knife. Each bunch measures 8½ inches in length. In arranging the shoots in the bunching machine see that the tips curve inward, in order to lessen the chance of injury in transit.

After the bunching operation the bunches are usually divided into their respective grades and placed on a table covered with damp moss, or they are placed temporarily in an upright position in a shallow tray containing about an inch of water. This prevents the shoots from drying out.

The crate is divided into two compartments, each holding six bunches.

Some growers have found that it pays to use a water proof paper in the bottom of the crates. This paper is cut about two inches larger than the bottom of the crate and is placed in the crate with all edges up. This forms a pan which will hold all the water that would otherwise go to waste from the 1½ inches of wet sphagnum moss which is placed on the paper in the bottom of the crate.

Cost of Growing Asparagus per Acre Two Years.
Farm: George B. McKeown & Son, Elkton, Md.

Planted: Spring 1924
Field: 15 acres
Variety: Pedigreed Washington
Planted rows: 5 ft. x 16 to 18 inches in row

Roots	$75.00
Cost Setting roots	8.00
Fertilizers	135.00
Soil Preparation	15.00
Hoeing	36.00
Spraying (Beetle)	8.00
Cultivation	16.00
Interest and taxes-land	15.00
Total	$308.00

Cost per crate (dozen) Preparing and Marketing

Cutting and bunching	.60
Crate	.25
Moss, tape and paper	.05
Express	.40
Commission	.50
Cost per crate	$1.80

Fertilizing and cultivation costs about $75.00 per acre after 1st year. 1200 bunches (2½ pounds per bunch) good yield after 3rd year.

References: Bulletin 381 "Growing and Handling Asparagus Crowns" and Bulletin 410 "Factors Influencing the Quality of Fresh Asparagus After It is Harvested." Both may be secured from the University of California Printing Office, Berkeley, California. Farmers Bulletin 837 "The Asparagus Beetles and their Control." U. S. Department of Agriculture, Government Printing Office, Washington, D. C.

EXPERIMENTAL RESULTS ON THE FERTILIZING OF ASPARAGUS

By THOMAS H. WHITE,

University of Maryland, College Park, Maryland.

The fertilizing of asparagus in an experimental way has been in progress at the Maryland Experiment Station for the past twenty years. From 1905 to 1910, a set of plots were under observation which were designed to discover what mixtures of chemicals or quantities of stable manure were best and most profitable for the asparagus crop. The details of these experiments were published in Bulletin No. 151, so now I will refer only to the results. The figures given are on a per acre, per year basis. The highest yield was taken from the plot supplied with twenty tons of fresh stable manure in the early spring, but when the manure cost $2.00 per ton there was a gain of only a little over $10.00 over the plot that had received no manure or fertilizer. The greatest gain was from a heavy application of Kainit in midseason. This made a profit of sixty-six dollars. 400 pounds of acid phosphate, 400 pounds of Kainit, and 200 pounds of nitrate of soda, mixed together and applied in those amounts per acre in the early spring, made the next best gain which was $58.00.

The 100 pounds of nitrate of soda used alone resulted in a loss of $35.00. 500 pounds of acid phosphate resulted in a loss of $33.00. The acid phosphate seemed to depress the field below the untreated plot. One hundred and twenty pounds of muriate of potash applied in midseason made a gain of $4.00, while the same amounts of sulphate of potash

resulted in a loss of $3.00. Ten tons of fresh manure in early spring supplemented with acid phosphate 400 pounds, Kainit 400 pounds, and nitrate of soda 200 pounds, made a good yield, but with a gain of only $10.00. One ton of salt seemed to increase the yield so that a profit of $5.00 was realized. These experiments were conducted on a piece of loamy, fertile soil where Kainit and salt might have a temporary stimulating effect which would result in good yields for a few years, but application of salt and Kainit could not be expected to keep up the soil fertility.

In the spring of 1911 another piece of similar soil was Planted to the Palmetto variety, and as it is somewhat difficult to get a uniform standard of growth on all plots, it was planned to cultivate this patch for a few years, without fertilizing, and cut the plots for several seasons so as to have a gauge as to the uniformity of their production. After two years of growth, cutting was commenced and the yield from each row recorded separately. This was done for four years, then the patch was divided into five plots of one-tenth acre each.

In the spring of 1918 fertilizing was commenced and the plots treated as follows:

Plot 1. No fertilizers.

Plot 2. Ten tons per acre of half-rotted manure applied in early spring.

Plot 3. Acid phosphate 200 lbs., nitrate of soda 500 lbs., and Kainit 500 lbs. per acre in early spring.

Plots 4 and 5 to be duplicates of 3 and 4, but the manure and fertilizers were to be applied after cutting ceased in midsummer.

Each year since 1918 the plots have been fertilized and the yields recorded. There is, of course, a normal increase in yield each year in the unfertilized as well as the fertilized plot, due to the development in size of the root stocks. But as this is the same for all plots it need not be considered in comparing results. Therefore, comparison has been made between the plot 1 receiving no fertilizer, and the others which received fertilizers.

An average of the yields for the four years of cutting before manuring and fertilizing commenced were:

Plot 1. 218 pounds.
Plot 2. 202 pounds.
Plot 3. 230 pounds.
Plot 4. 194 pounds.
Plot 5. 198 pounds.

This you notice shows considerable variation so that a record of each plot before fertilizing was essential.

The fertilizers and manures have been applied annually since the initial application in 1918. The cutting was started in the spring as soon as the first stalks came through the ground, and the beds were cut down until the middle of June.

An average of the cuttings for the nine years, since 1918 shows that Plot 1 averaged 350 pounds, plot 2, 413 pounds, plot 3, 493 pounds, plot 4, 400 pounds, plot 5, 445 pounds, or calculating in percentage, the plots from 1 to 5 consecutively gained 37%, 51%, 53%, 50%, 55%. Now, if the check gains 37% that must be attributed to the normal increase in the size of the plants and the fertilized plots could be expected to gain the same. Therefore, the real gain is the difference in percentage between them. This would make 14% for plot 2, 16% for plot 3, 13% for plot 4, and 18% for plot 5. Plots 3 and 5 made the best gain, these are the two which are fertilized with the chemicals.

The price of stable manure, if purchased in the city and freighted to the farm, would be at least $5.00 per ton or $50.00 per acre per year, while the chemical fertilizer would cost about $16.00. It is easy to see the profit is much in favor of the chemical as the increase in yield was greater and the fertilizing cost about one-third as much as the stable manure.

For further test of the fertilizer requirement of asparagus, some large drain tile, twenty-four inches in diameter and three feet deep were sunk into the ground and filled with bank sand. Selected plants of Palmetto were set three in each tile. Ground limestone was applied at the rate of two tons per acre, also commercial fertilizers composed of raw

bone meal, tankage, nitrate of soda, and muriate of potash were applied to each and all of the tile. After two years of growth the amounts cut from each series of five were recorded for three consecutive years. After this time each series of five were fertilized differently in order that observations could be made on the effect of the different fertilizer treatments. These were arranged to study the effect of: (1) Raw bone meal and tankage fertilizers against acid rock, nitrate of soda, or sulphate of ammonia. These to be applied before and after the cutting season or in spring or summer. (2) Value of Kainit large and small amounts. (3) Also manure both rotted and fresh applied in winter, spring, or summer. (4) Also acid rock, nitrate of soda, and Kainit to supplement six tons of manure per acre, and (5) on two other plots the effect of four hundred pounds of salt or four hundred pounds of Kainit along with twelve tons of rotted manure per acre, was tested. After three years of these treatments the plots making the largest gains are those receiving the larger amounts of stable manure. However, those receiving the fertilizers are only slightly behind, and there seems to be no difference between those in which the fertilizing material, raw bone meal and tankage, and those of acid rock and nitrate of soda were used. The plots getting nitrate of soda are considerably better than those receiving sulphate of ammonia.

Kainit used alone on the sand does not seem to have been of any value, and only slightly if of any value when used with twelve tons of rotted manure at the rate of four-hundred pounds per acre. The same also may be said of common salt.

With regard to the time to apply manure or fertilizers, it may be said that an experiment to prove whether fertilizers should be applied in spring or summer is very difficult of application, for in the case of the spring application the fertilizer is applied four months before the summer application, and in the case of the summer application if the soil were poor, fertilizer would be sure to promote a good, full growth. It is rather difficult to arrive at definite conclusions regarding this matter. There is always quite a prolonged period between the times of application in either case whether the fertilizers are applied in March or June. In our first experi-

ment when manure and fertilizers were applied in March before cutting there was an increased yield the same season and the plots receiving this treatment continued in the lead for some years, but in the later experiment in the tile filled with sand where the fertilizers were applied in June after cutting was over, those treated produced better the year following, than those which received no fertilizer until spring.

Apparently from the experiments in the sand good asparagus can be grown when only a commercial fertilizer is used. This makes the crop a valuable one where stable manure is scarce and expensive. The inorganic or chemical fertilizers seem to be quite satisfactory, and made up in the proportion similar to stable manure is cheaper and easier to obtain.

A ton of good stable manure contains about eight pounds of ammonia, two pounds of phosphoric acid, and six pound of potash. These ingredients can be obtained from nitrate of soda, acid phosphate and Kainit or muriate of potash. If it is thought that the equivalent of ten tons of stable manure per acre per year will keep the soil fertile, then five hundred pounds of nitrate of soda, two hundred pounds of acid of phosphate, and five hundred pounds of Kainit, or one hundred and twenty pounds of muriate of potash will supply the fertilizing elements. The fertilizers can be applied either in spring or summer, and the amounts to apply would not need to be more than twelve to fifteen hundred pounds per acre per year. Some later experiments have been started at the Ridgely Sub-Station which aim to ascertain the value of the different commerical brands of fertilizer such as 2-8-2, 4-8-4, and 7-6-5.

Briefly then in conclusion, it may be said that thus far we have learned good asparagus can be grown even on unfertile land with chemical fertilizers, and that it is unprofitable on fairly fertile land to apply stable manure in large amounts.

THE FUTURE OF MARKET GARDENING ON THE EASTERN SHORE

By G. R. COBB, Salisbury, Md.

If it be true that "one man's guess is as good as another's" this subject should be easy for one with only a little knowledge of the subject to handle, provided he has a ready tongue,

fluent pen and a vivid imagination. However, the speaker lacking these attributes will be compelled to limit himself to facts omitting any guess work and long range prophecies.

We are told that in the evolution of the vegetable industry, it has passed from the home garden stage through the period of market gardening, truck gardening and truck farming, until today we find specialized production on large areas.

In other words, the old time gardener raised products for his immediate family. But soon he was raising more than his family could consume with the result that he sold the surplus to his neighbors or to the local store. He raised a variety of products with no one crop occupying a large acreage. We shall use this definition of "market gardening" throughout this discussion.

There are two main factors to be considered in Market Gardening, as there are in practically every other line of agricultural activity. First, the production, and second, the marketing. Without going into the relative merits or importance of either, we will assume that each of these factors has equal weight in the future of Market Gardening on the Eastern Shore.

The production of any crop is limited largely by climate and soil while transportation facilities are limiting factors in the marketing of the products. Climate and weather conditions can be regulated, somewhat, by the gardener if he will use glass and irrigation. It is understood, of course, that any such aids add to the cost of production and the grower must, therefore, receive higher prices for his goods in order to make enough to pay for the increased cost of production.

In considering climate we naturally think of many things—length of growing season, temperature and humidity, topography and elevation, influence of bodies of water and action of winds. This last is very important in regions like the Eastern Shore, where light, sandy soils abound.

Some one has stated that the vegetative activity of plants occurs, only, when the temperature is 43 degrees F., or above. If this be true then the Eastern Shore is well adapted to vegetable production in so far as temperature is concerned. Weather records show that the Eastern Shore's frost-proof period extends from April 1 to October 25, a period covering practi-

cally six months. Looking at the matter of temperature in another light we find that the period during which the temperature is 43 degrees or above lasts from 240 to 320 days.

Weather charts show that Worcester County has about 200 days, Somerset County 196 days, Wicomico County 200 days, Dorchester County 211 days and Talbot County 204 days of growing weather, when frosts very rarely occur. In other words, this length of season may be said to be safe for growing plants that are harmed by frost. Without going into detail regarding the number of days different crops require in which to mature, it appears that any vegetable crop can be grown and matured on some part of the Eastern Shore if not on the whole Shore.

Summarizing the temperature factor we find that the planting season on the Eastern Shore is about the same as that of Norfolk and about two weeks earlier than that of New Jersey and Long Island. In addition to this advantage the Eastern Shore is further blessed with the fact that killing frosts occur two weeks later in the fall than in these northern sections. A third advantage, not heretofore mentioned, is the large number of days of sunlight and almost ideal humidity conditions that prevail during most of the growing season.

We learn from several authorities that distribution of rainfall has been one of the most important factors in the vegetable industry and furthermore, that the minimum precipitation with which ordinary agriculture may be carried on, without the use of artificial irrigation, is twenty inches.

Referring again to weather records of the past twenty years we find the following facts in regard to rainfall on the Eastern Shore. First, that the rainfall is nowhere less than twenty inches and in most counties more than 40 inches fall during the season. In brief, the upper counties, with the exception of a small area in Talbot County and Caroline County where the rainfall reaches 35 to 40 inches, show from 40 to 45 inches of rainfall. A section through Wicomico and Dorchester Counties seems to be in the rain belt and as a result has from 45 to 50 inches while the rest of the lower counties receive from 35 to 40 inches. Dr. Paul Gemmil in his treatise on "The Agriculture of the Eastern Shore Country," concludes the matter of rainfall with this statement—"The aver-

age rainfall in the Eastern Shore Country is from forty to forty-five inches. However, the rainfall is well distributed throughout the growing season, and crops do not suffer from lack of moisture."

Market gardeners in and near Boston, Massachusetts, as well as those operating near Providence, Rhode Island, are blessed with beneficial effects due to the Gulf stream while Eastern Shore growers have the Chesapeake Bay on one side and the Atlantic Ocean on the other. These bodies of water exert a great deal of influence on climatic conditions in modifying temperatures and humidity conditions. This influence is felt very greatly on the lower end of the Shore where white potatoes are planted early in February and harvested but little later than some northern sections are planting.

Four general soil types have played an important part in the distribution of the vegetable industry. Market Gardening in the United States, as a business or industry, originated in what is now greater Boston. And there, in New England, we find the vegetable industry located on clay loams. The silt soils of the Mississippi Valley and the peat soils around the Great Lakes and in Florida are productive of vegetable crops. The fourth class, with which we are mainly concerned, are the sandy loams of the Atlantic Coastal Region.

Although there is a wide range and a great variety of soil types on the Eastern Shore the sandy loam types such as the Sassafras, Portsmouth, Norfolk and Keyport series probably prevail. And from study and experience it has been shown that these soil types are well suited to early vegetable crops. One authority goes as far as to say that "the better drained Sassafras types are the equal of any trucking or vegetable soils in the country."

These light, sandy soils warm up early in the spring and many times cantaloupe and cucumber seed are sown in the month of February. These soils are also easy to work and respond quickly to manures and fertilizer. Their lack of moisture retaining capacity is perhaps their greatest handicap and yet this is not a serious defect. Many examples and demonstrations of the residual effects of fertilizer show clearly that not all of the plant food is leached away in a short time.

In one instance marked residual effects were shown nearly five years after the commercial fertilizer had been applied.

Lack of organic matter or humus may be said to be another handicap in these light soils but this is easily overcome with one or more of the many crops that can be grown to turn under as green manures. Rye, for example, may be seeded even late in November and yet make a wonderful growth to turn under the following spring.

Briefly, then, the prevailing types on the Eastern Shore are included in the list of best soil types for trucking or market gardening. They are in the main of the light sandy loam type so well liked by members of the vegetable family, in most all cases well drained, easy to till, respond quickly to treatment, and, all in all, are well adapted to the needs of the Market Gardener.

As the future can only be judged by the past it might be well, at this time, to review briefly, the success or failure of market garden crops on the Eastern Shore. During the World War many community gardens were started and prizes offered for the greatest production per area and the largest amount of such products canned or preserved in some manner. In this contest many of those who entered grew from 26 to 38 different vegetables. All of these thrived and developed into high quality so that this particular drive demonstrated that a great many different crops can be produced on the Shore.

For years the Eastern Shore has been noted for its white or Irish potatoes, sweet potatoes, strawberries, cantaloupes, cucumbers and watermelons. Of late, many growers have included spinach, asparagus, lettuce, cabbage and other vegetables in their list of commercial products grown on the farm. A list of the different crops that can be raised on the Eastern Shore together with examples of yields on different farms would take too long and would be unnecessary. Sufficient to state that all ordinary vegetables can be grown to perfection on some part of the Eastern Shore.

I would like. however, to mention this one farm as a sample of what can be done. This farm is located in Somerset County and the following report is, I assume, accurate although no

affidavits have been secured as yet. A farm of 30 acres is credited with these crops and yields—

½ acres of asparagus	$ 100.00
4 acres of strawberries	1,500.00
2 acres of white potatoes	400.00
2 acres of sweet potatoes	150.00
2½ acres shipping tomatoes	600.00
4 acres canning tomatoes	250.00
2 acres string beans	250.00
2 acres lima beans	500.00
2 acres turnip greens	250.00
800 chickens	2,500.00
9 acres for general use.	
Total	$6,500.00

Whether the above report be true or like Mark Twain's death "greatly exaggerated," the fact remains that there are over 38 different crops that can be produced on the Eastern Shore. This number may not be needed nor seem so large when we remember that Florida produces 50 different vegetables and 20 different fruits and nuts within its borders. While on the subject of Florida, it is interesting to note that Miami vegetable growers send as far as St. Louis for stable manure. They must feel that they are justified in this expense although some of our experts are telling us now that organic matter in the form of stable manure is entirely unnecssary if enough commercial fertilizer be used to grow rugged, vigorous plants with their resultant root system.

The light, sandy soils of the Eastern Shore are not ideal for the production of tomatoes either in quantity or quality as the yields are small and the fruits small and full of water. But enough tomato soils are present to enable the Eastern Shore to lead the country, at one time at least, in the total output of tomatoes. Strawberries are lovers of moisture and for that reason are planted mainly on springy land. That such land is available on the Shore is indicated by the carlot shipments of strawberries from Marion, Pittsville and other stations.

The past has shown us, then, that the generally accepted list of vegetable crops can be grown on the Eastern Shore, that climate and soil conditions are favorable to the Market Gardener in that they will, with some assistance in the shape

of manure, fertilizer and cover crops to turn under, produce quantity production of high quality products.

From the economic standpoint, however, transportation and market demand have always been limiting factors in the vegetable industry and the growers' neglect to give careful consideration to such factors, has resulted in many failures.

There are several million people, prospective or actual consumers, within hauling distance of the Shore. Large cities such as New York, Philadelphia, Washington and Baltimore, as well as many smaller cities are easily reached by auto truck. In fact, growers as far south on the Shore as Salisbury and even Princess Anne are guaranteed twelve hour service by truck to New York. That this business of hauling by truck has progressed greatly is clearly shown by the fact that on one day in 1925 194 auto trucks laden with farm produce passed a given point going north to Chester, Wilmington, Philadelphia, New York or some other city.

Vegetables shipped in this way reach market, many times, in almost perfect condition and are there in time for the early market. The cost of this service when everything is considered, is not prohibitive, neither is it more, in comparison, than the cost of transporting the same class of products by other methods.

In addition to auto trucks and good roads the Eastern Shore grower has what is considered the ideal location as regards transportation facilities as he has several different ways of shipping his product each competing with the other; by water, by rail or by truck. And each mode has been improved so that now the products are rushed to market under ideal conditions. Refrigeration has helped immensely as has the scheduling of fast trains to move the produce. Only twelve hours from the lower part of the Shore to Philadelphia and only 24 hours to the largest eastern cities.

In spite of the fact that Baltimore has the reputation of being a poor market for good stuff several growers on the Shore have found the reverse to be true. They have shipped farm products there and received as high prices as were quoted in other cities with better reputations. During 1926, I personally know of several shipments of peas, lettuce and cabbage that brought good prices when shipped to Baltimore.

Lettuce, for example, brought $1.25 per dozen heads when the same kind from California was bringing but $4 per five dozen heads. And Baltimore can be reached by water from the Eastern Shore easily and produce shipped cheaply as it costs but from 10 to 14 cents per bushel package on some boat lines.

The mecca for vegetables as well as tourists seems to be the city of New York, and at times even this great city with its millions of population is overwhelmed. But there are many smaller cities like Chester, Wilmington, Harrisburg and others where vegetables from the Eastern Shore have been shipped with good demand at good prices. Further study must be given by the Shore grower to markets outside of the larger eastern cities as at times these cities are flooded by farm products although not always with high quality products.

A factor that must be considered seriously by the Eastern Shore Grower is that of selection of crop. We have already seen that seeds may be sown and plants transplanted at least two weeks earlier on the Eastern Shore than in New Jersey or on Long Island, two other large vegetable sections. This should be and is a decided advantage to the grower on the Shore if he will but work it to his advantage.

Prof. Geise, of the University of Maryland, in his study of the tomato, found that there is a short period when eastern markets are fairly shy of early tomatoes. The Eastern Shore grower, can if he will, grow this crop to mature or be ready to ship during this slack period. Referring to our sample farm we find that early tomatoes returned 600 dollars on 2½ acres. Not such a bad return when it is remembered that another crop or even two can be grown on the same piece of land during the year.

Similar results can be seen with other crops produced on the Shore in that they can be grown and marketed at a time when the other competing sections are nearly through or just before they begin shipping. In normal seasons the Eastern Shore grower has the cantaloupe and cucumber market almost to himself for a short time, as North Carolina is about through and Jersey and New York state have not started. Late cantaloupes, maturing about the first part of September, have been ready-money makers and Italian Squash has been a

boon to many Eastern Shore growers. Iceberg lettuce, experts to the contrary, can be grown and matured on the Shore and finds a market at a time when the California product is being received in poor condition and other sections are still growing the plants.

Salad greens, or just greens, can be harvested during the first part of March at a time when the market is anxious for such a product. These greens shipped during the first part of December of this present year brought $2 per bushel basket and the growers were cutting 500 baskets to the acre.

Thus the selection of crops to plant is an important factor and one that the average farmer has neglected too long. Seasons can be hastened by using glass and irrigation but a grower must know the market demand and, furthermore, he must know when competing sections market their produce as well as the estimated acreage and yield.

The organization of co-operative marketing bodies on the Eastern Shore has helped materially in the marketing end of the game but much remains to be accomplished. Standardization of the products grown on the Shore with strict adherence to grade is, to my mind, the first step. This has been touched on only lightly up to now and more effort must be put forward to put this movement over as soon as possible. Government Inspection is being utilized by growers on the Shore with fine results but more of this is needed.

In view of the many advantages of the Eastern Shore in climate, soil, bodies of water, nearness to market, and intelligent people, I firmly believe that Market Gardening can be made a real live industry with fair returns for money and time invested.

SECOND SESSION

January 6, 1927

The second session of the Vegetable Growers' Association was called to order with W. G. Smith in the chair. The papers presented at this session follow:

THE MARGLOBE TOMATO AND ITS PERFORMANCE IN MARYLAND

By L. M. GOODWIN, Denton, Md.

In discussing the Marglobe tomato and its performance in Maryland, no doubt those present would be interested in knowing something about the origin and history of the variety. Dr. F. J. Pritchard, the originator, whom we are fortunate in having with us today, has been kind enough to supply me with the following regarding the development of Marglobe.

The Marglobe developed from a cross between Marvel and Globe in the winter of 1917-18. The strains of these varieties used in making the cross were selected for nail head resistance in 1915 and 1916.

Marvel, one of our wilt-resistant varieties, was selected as one of the parents because of its resistance to wilt and nail head rust and partial resistance to Septoria leaf spot, early blight and leaf mold. It has a very hardy vine, a free fruit-setting habit and a long bearing period. Moreover, it produces heavy yields of good fruit but the fruits are a little small for commercial canning and not globular enough for a shipping tomato.

Globe, as you probably know, produces large, thick-walled globular fruits but their skin is rather thin and cracks easily. Although Globe fruits are very susceptible to nail head rust its foliage is fairly free from it and other blights. Moreover, it has fair resistance to wilt.

The Marglobe was developed primarily for a shipping tomato for use in Florida and other Gulf States where wilt and nail head rust cause heavy annual losses. Before it was perfected (i. e. ready for commercial uses) we realized it had excellent possibilities as a shipping tomato in other regions also and as a canning variety, consequently we selected as much for canning qualities as for shipping qualities.

Marglobe has most of the good qualities of its parents and is superior to Globe in yield, earliness, length of bearing period, solidity of fruits, toughness of skin and in resistance to nail head rust and puffiness of fruit as well as in resistance to wilt.

We had an opportunity to test Marglobe rather thoroughly in Maryland last year as a canning crop. An appreciable quantity of seed was distributed to growers in the canning counties through the County Agents. We followed these lots of seed throughout the season and found that the variety proved most satisfactory under a wide range of conditions. In practically all instances the growers were pleased with its performance.

Prof. F. W. Geise and I, in co-operation with the County Agents of the Eastern Shore counties, arranged for and conducted nine tomato variety tests. Some of the best known and most widely used varieties were included in the tests. The varieties in the tests were carefully observed and checked throughout the season, for earliness, character of growth, quality of fruit, resistance to disease and yield of marketable tomatoes.

Of course, it must be borne in mind that this is only one year's results but it at least gives us some indication of the performance of these varieties under the unfavorable growing conditions of 1926.

We feel that Marglobe made the best average showing of any variety tested. It was generally higher in quality, was superior or compared favorably in yield in the majority of the tests. It showed the greatest resistance to Early Blight and produced fruit throughout as long a picking season as any variety tested. It also proved to be wilt resistant as recommended by Dr. Pritchard.

We have here a summary of the results obtained last season in our tests.

I have confined my observations entirely to the Marglobe as a canning variety. Unfortunately, we have not had the opportunity to test it very thoroughly as a fresh market sort. It does, however, give every indication of being of suitable high quality for this use. The only question in my mind is whether or not the Marglobe variety will produce fruit in sufficient quantities early enough for market in July. Dr. Pritchard can no doubt enlighten us on this point.

Personally, I am inclined to believe that we will have no difficulty in producing plants sufficiently early by means of hot beds to give us tomatoes for fresh market by July 10th.

COMPARATIVE RANK 1926 TOMATO VARIETY TEST

Test No. / No. Varieties in Test	1 12	2 9	3 8	4 11	5 16	6 5	7 4	8 8	9 12	Average	Rank
Variety	Rank of Variety in Test										
Bolgianos Gr. Baltimore	6	7		6	2			6	5	$5\frac{1}{3}$	7
Indiana Baltimore	7	5		7	2			3	3	$4\frac{1}{2}$	4
Radebaugh	3	6	6	9	12	5		2	1	$5\frac{1}{2}$	8
Livingstone Stone	10	9		2	6			5	12	$7\frac{1}{3}$	10
Norton Stone	12	8	6	6	8		1	6	10	$7\frac{1}{8}$	9
Columbia	8	1	4	4	6		3	3	7	$4\frac{1}{2}$	4
Marglobe	4	3	1	3	1	1		8	6	$3\frac{3}{8}$	2
Stokes' Bonnie Best (Special)	2	3		10	4			1	2	$3\frac{2}{3}$	3
Stokes' Best (Standard)	1	2			14				4	$5\frac{1}{4}$	6
Marvana			3							3 *	
Marvel			2				4			3 *	
Norduke			8				2			5 *	
Twilley Stone			5		9					7 *	
Maryland Solid	10									10 *	
Stone Baltimore	9									9 *	
Maryland Slicing	5				8					$6\frac{1}{2}$*	
Caroline No. 1				1	4	4				3	1
Caroline No. 3				4	16	2				$7\frac{1}{3}$	10
Caroline No. 5				9	12	2				$7\frac{2}{3}$	12
Stokes' Gr. Baltimore					10				11	$10\frac{1}{2}$*	
Temple's W. R. Stone					10					10 *	

*Appear in less than 3 tests.

During the latter part of June and throughout July when Maryland is marketing fresh tomatoes the markets are well supplied. We come in competition at this time with the latter part of the crop from States farther South. In view of this it would seem that Marglobe would be especially desirable due to its superior shape and quality and general attractive appearance.

(Dr. Pritchard informed the meeting that many of the New Jersey growers of fresh market tomatoes had tried the Marglobe the past season and were so well pleased they planned to use it exclusively the coming season.)

CONTROL OF TOMATO BLIGHTS

By FRED J. PRITCHARD,

Physiologist, Office of Vegetable and Forage Diseases,
United States Department of Agriculture

As my subject is rather broad, I shall limit it to Septoria leaf spot and early blight—the two most common and, with the exception of wilt in some localities, the most destructive tomato diseases in the Middle East and Middle West.

These blights reduce the average annual yield of tomatoes about 30 per cent. in Maryland, 24 per cent. in the whole Middle Atlantic region, and 10 per cent. in the Central West. Moreover they lower the quality more than the yield.

Before reporting the results of our experiments with these blights and making recommendations for their control, I wish to make a few remarks on their symptoms, cause and environmental relations.

Septoria leaf spot affects the leaves, stems and flowers but not the fruits. Small circular spots with gray centers and brown margins appear on the stems and leaves. Small black bodies about the size of fly specks ultimately develop in these spots. These are the fruiting bodies, which contain spores. When these spots become numerous, the leaves turn yellow and brown and finally die and drop off. In fact, when the disease is epidemic, the whole plant becomes defoliated with the exception of a few green leaves at the tips of the branches. These bare stems and tufts of green leaves are quite characteristic of the disease and make a striking contrast with the

stems and leaves of healthy plants. These changes are accompanied by yellowness, immature development and sun scald of fruits. In wet or moderately moist weather new shoots develop on the lower parts of the branches but their fruits seldom mature.

Early blight attacks the foliage and fruit of the tomato and causes a disease of tomato seedlings known as collar rot. On the leaves and stems it produces small black, angular spots, which later enlarge, turn brown and not infrequently converge, forming irregular areas. These spots often start at the tips and margins of the leaves, and not uncommonly show target-board markings. On the fruit early blight causes a firm, black spreading rot.

Blights are caused by parasitic organisms. Formerly this group included similar diseases caused by atmospheric and other agents but it is now usually limited to those of parasitic origin. Familiar examples among tomato diseases in this region are Septoria leaf spot and early blight. Each of these blights is caused by its own specific fungus and by no other means

Fungi are very minute, more or less branched, thread-like plants. They are too small to be seen by the unaided eye, except when growing in mass, but look fairly large when viewed with a microscope. They are destitute of green coloring matter, such as possessed by higher plants, although some of them produce other green pigments in their spores. The most familiar forms are probably the molds, which grow upon bread, pie, cake, fruit, and other organic substances. Although the molds consist of very minute, branched threads, visible without a miscroscope because they grow in masses. they are visible without a microscope because they grow in masses.

When the filaments or threads which constitute the body of the fungus approach maturity, they usually produce small reproductive bodies called spores. These spores are not infrequently colored. Some fungi produce their spores on the tips of branches, others produce them in spore cases called fruiting bodies, or other special names.

The spores of one kind of fungus are different from those of another. In fact, the variation in size, shape and color of

spores is as great as in seeds. As each kind of spore reproduces only its own kind of fungus, spores are as useful in the identification of fungi as seeds are in the identification of higher plants.

Spores serve the same purpose as seeds. Although fungi occasionally grow from detached pieces of filaments, as willows, grapes and privets do from cuttings, they commonly reproduce by means of spores, which they produce in enormous numbers.

Most fungi feed only upon dead plant or animal materials. They decompose these materials by means of enzymes and absorb from them such soluble substances as they are able to utilize as food. The remaining materials become a valuable part of the soil. Hence most fungi are useful.

A few of the fungi that commonly live upon dead plant and animal remains are also able to attack living plants or animals. These fungi are called parasites. Those attacking plants are plant parasites; and those attacking animals, animal parasites. Usually a plant parasite is unable to attack more than a few kinds of closely related plants but the Septoria leaf spot fungus is parasitic on a fairly large number of different kinds of plants.

When a parasitic fungus attacks a higher plant by dissolving its way into it and robbing it of its food, it causes disease and frequently death of the part attacked. These diseased parts are usually recognized as spots, blotches, or streaks. If the attacks are numerous, the whole organ or plant dies. Some of these results are known as blights.

Although blights are caused by organisms, environment plays an important part in their development. Probably the most essential factors of the environment are moisture, temperature and food.

Moisture is generally favorable for germination of spores and infection of plants. Therefore, most blights develop rapidly in wet weather and remain inactive in dry weather.

Cool temperatures favor the development of early blight and hinder the development of Septoria leaf spot. Hence we have early blight in spring and fall and cool summers, and Septoria leaf spot in hot summers, in the Middle East and Central West. Cool temperatures retard the appearance of

Septoria leaf spot in the summer as the fungus that causes this disease can produce spores only between temperatures of about 60 and 80 degrees Fahrenheit and requires approximately a month for sporulation at the lower limit of this range. Moreover the disease itself becomes epidemic in the United States only in regions where the mean temperature during the growing season lies between 73 and 78 degrees.

An abundant food supply enables these blight fungi to multiply and overwinter in large numbers. Dead weeds and various kinds of crop remains, such as old corn stalks, wheat stubble, etc., are utilized by them as food. In tomato fields they overwinter chiefly on the old vines but may overwinter on any other dead plant material. As long as these plant remains lie on the surface of the soil, these fungi can use them as food. They grow, sporulate and multiply on them during the growing season and produce numerous spores on them again the following spring or summer. As often as these spores are spread to other crop débris, they grow and multiply and thus continue to live from year to year. When tomatoes are planted in these fields, they are subject to attack by these ever-present parasites.

Several practices are helpful in the control of blights. Some of these are more effective than others but all are worthy of consideration.

Not infrequently spores of blight and fruit rot fungi are carried on or in tomato seeds. The early blight fungus, for instance, not only invades the seed coats but attacks the young seedlings causing collar rot. The ripe rot fungus also produces spore pustules in the seed coats but does not apparently attack the seedlings. However, it is frequently carried to the field on the soil adhering to the roots and multiplies beside the plant where it has a convenient opportunity to attack the fruits as soon as they reach the proper stage of development. Various other fruit rot fungi adhering to the seeds are carried to the fields by the same means. There they multiply on crop remains and later attack the fruits. The Septoria leaf spot fungus is also occasionally carried on the seed. Although this fungus rarely if ever attacks the fruits, its spores are often carried into the pulper on the fruits where they mix with and adhere to the seeds. They sometimes grow on the

cast-off seed coats at the base of the seedlings and are doubtless carried to the field with the soil and plant.

A thorough treatment of the seed with bichloride of mercury or formaldehyde or some of the organic mercury compounds now on the market will kill the spores on the surface and sometimes prevent the development of filaments in the seed coats. Such a treatment costs little and should always be used when other means are employed to improve the sanitary conditions of the fields. A good treatment for this purpose is as follows: Tie the seeds in a very porus bag or piece of cheesecloth and place them in a solution consisting of 1 part by weight of bichloride of mercury and 3,000 parts of water. Move the bag about freely in the solution to remove all air bubbles. After 5 minutes remove the bag of seed and wash it in running water or in several liberal changes of fresh water for 10 to 15 minutes. Then sow immediately or dry the seeds and sow them later. Bichloride of mercury is very poisonous and should not be left within reach of children or stock.

Quite frequently blight fungi are allowed to develop in the seed beds where they attack the young plants. Plants from beds in which disease is evident as spots on the leaves or brown or black areas on the stems at or near the soil line should not be used.

Great care should be taken to keep the seed beds free from parasitic organisms. If they are infested, the frames should be washed with a germicide and the soil sprayed with a solution of formaldehyde consisting of 1 gallon of 40% formaldehyde to 50 gallons of water at the rate of 2 quarts per square foot before the seed for the next crop is sowed. Do this at least 10 days before planting the seed in order to give the formaldehyde sufficient time to evaporate. Steam sterilization is better than the formaldehyde treatment and should be used if available.

Deep plowing and spading and complete burial of every particle of trash in the bed is also helpful as these particular fungi do not seem to live when buried deeply in the soil. Dusting the surface with powdered copper carbonate at the rate of 1 oz. per square yard of soil immediately after sowing the seed also has a very beneficial effect in preventing the development of blight and damping-off fungi.

A change of soil in the seed beds is often recommended and this has frequently given good results especially when the fresh soil is taken from an old pasture or other field in which tomatoes or related crops have not been grown for several years but as will be shown later, this by no means insures freedom from parasitic organisms.

The area immediately surrounding the seed beds should be kept free from trash, such as dead weeds, dead grass, straw, etc., as the blight fungi grow readily on these substances and can be easily carried from them into the seed beds.

Considerable Septoria leaf spot can be avoided by the use of early plants. As this disease first appears on plants in the field about July 1 in Maryland, except when carried from the seed beds, early plants are able to produce a large part of their crop before leaf spot has time to do much damage.

Rotation of crops is a helpful means of controlling blights and other diseases. The fungi that live wholly upon dead plant materials greatly outnumber the parasites. As long as the parasites are wholly dependent upon dead weeds and crop remains for food, competition with other fungi for this food greatly hinders their multiplication. They continue to exist but in relatively small numbers. When a susceptible crop, such as tomatoes, is planted, however, its parasites multiply rapidly on it as they have no competition with other fungi. They also multiply rapidly in the remains of such a crop because of their pre-invasion of it. The more frequently tomatoes are planted in this field, the greater the development of its parasites. Rotation of crops prevents this advantage of the parasites over their non-parasitic competitors and therefore helps to control diseases.

Septoria leaf spot and early blight can be controlled by spraying or dusting the plants thoroughly and frequently with fungicides. Of the two processes, spraying has usually given the better results. The increases that can be obtained from spraying tomatoes differ somewhat, however, owing to differences in fertility of the soil and variations in the severity and duration of the disease. On a soil capable of producing high yields, spraying is commonly profitable if the disease is severe but on poor land it often gives little if any increase over the expense. In the latter case, it would be more profit-

able to spend the money for extra fertilizer. Moreover, if the disease is only of moderate severity or if its development is delayed until the crop is nearly mature it may not do enough damage to make spraying profitable.

If spraying is planned, it should be started when the disease first appears in the field and should be continued until approximately the end of the picking season. Applications at weekly intervals are usually necessary, except in dry periods, to successfully control these diseases. Bordeaux mixture of the 4-4-50 formula applied at the rate of 50 to 100 gallons to the acre at each application after the plants are fairly large has given good results. Its effectiveness is improved by adding 2 pounds of rosin fish oil soap to each 50 gallons of mixture. The soap will mix more readily if it is first dissolved in a small quantity of hot water.

We found in preliminary experiments that the fungi that cause leaf spot, early blight, nail head rust, ripe rot and Phoma rot of tomatoes are apparently killed when buried in soil during the winter. This suggested the possibility of preventing these diseases by thoroughly plowing under in the fall all dead tomatoe vines and other material infected by these fungi. Field experiments were therefore made to test the effect of this practice on the control of Septoria leaf spot—the most important of these diseases in the chief canning regions of the United States. Four isolated tomato fields, which lay at some distance from other tomato fields, and which had never been cropped with tomatoes, at least for many years, were selected for this purpose. Two of these were on high land and two on low land. On one high and one low plot tomato stems and leaves infected by Septoria were distributed in the bottom of the furrow as the land was plowed in the fall; on the others they were scattered on the surface. No further treatment was given until spring, when all plots were disked and planted with tomatoes. The results noted on July 11, are recorded in Table 1.

On July 11, no tomato plants were infected on the plowed plots but 88 and 23 per cent. were infected on the controls. A layer of mud deposited by a flood in the spring on the control which contained 23 per cent. of infected plants apparently reduced the amount of Septoria in this plot.

TABLE I.

RESULTS OF FALL PLOWING ON CONTROL OF TOMATO BLIGHTS

Arlington Experimental Farm, Rosslyn, Virginia

Year	Date of infection records	% of infected plants disked field	% of infected plants, fall-plowed field	No infections per plant disked field	No. infections per plant, fall-plowed field
1921	July 11	88.6	0		
1921	July 11	23.2*	0		
1924	July 7	49.	2		
1926	Aug. 2			64.7	1.7
1926	Aug. 2			55.9	1.6

*Infections apparently reduced by a layer of mud deposited by a flood.

The foregoing experiment was repeated in 1923-24. Two ¼-acre plots similar in soil type, elevation and environment were selected in parts of fields where no tomatoes had been grown for many years. Old tomato vines heavily infected by Septoria leaf spot and early blight were scattered over these areas. On one plot the vines were thoroughly buried by plowing in the fall; on the other they were left on the ground during the winter. Both areas were disked in the spring and planted on the same day with plants of the same age, size and variety. These results are also shown on table 1.

Owing to a very cool summer, Septoria leaf spot failed to develop to an appreciable extent but early blight was abundant. On July 7, as shown in table 1, the percentage of infected plants on the disked area was 49; on the fall-plowed area, 2. These results agree with those obtained in the previous field experiment and with those in the preliminary experiments. An average plant in the disked field in mid-season shows the lower leaves destroyed by early blight. An average plant on the fall-plowed plot shows the lower leaves still healthy. At the end of the season, the plants in the disked plot were defoliated by early blight; those in the fall-plowed field were healthy.

There was a little blight in the fall-plowed field at the end of the growing season. Moreover, what little developed was confined almost wholly to the plants on which it started. It gradually spread up the branches of these plants, but spread very little to neighboring plants.

The effect of fall plowing on the control of blights was again tested in 1925-26. Two separate 1-acre fields were selected on the Arlington Flats where several fields of tomatoes are grown annually. In fact these two plots had just produced a crop of tomatoes and were still covered with the vines. The north eighth of each plot was disked in the fall and the remainder thoroughly plowed. Both the disked and plowed areas used were also thoroughly disked in the spring. Strips of an eighth acre each, on both the north and south ends of each plot were planted in the spring with tomato plants of the same age, size and variety. The intervening space, consisting of ¾ acre and measuring 270 feet in length, in each plot, was plowed and planted with corn. The results are recorded in table 1.

On August 2, the average number of infections per plant was 64.7 and 55.9 on the disked areas and 1.7 and 1.6 respectively on the fall plowed areas. These records represent both early blight and Septoria leaf spot infections but early blight was much more common than Septoria leaf spot.

Most of the infections in the fall plowed areas were on a few plants where apparently the fungi were either not completely buried or were carried in the seed. There was very little spread of the disease from these plants to those surrounding them. Moreover there was very little if any spread of these blights from the disked to the fall plowed areas although they were separated by a distance of only 270 feet, and up to the second picking no precautions were taken to prevent them from being carried into the plowed plots. After the first picking, the fall-plowed plots were always picked immediately before the disked plots.

There was a little damage to one series of the plots by water, which stood on the surface and left a green film when it subsided, but this failed to alter the relative amount of infection in the disked and plowed plots.

This failure of the blights to spread such short distances is encouraging to the grower who wishes to put his own farm in a sanitary condition but fears re-inoculation from his neighbors' fields.

Thorough fall plowing would seem to offer an effective means of controlling other parasitic organisms, such as the fungi that cause ripe rot and Phoma rot of tomato fruits, as these fungi died when buried in soil in our preliminary experiments. Moreover it would doubtless be an economical means of controlling many diseases of other crops.

Where much washing occurs on fall plowed land, it can be prevented by growing a cover crop on it. This when plowed under in the spring will enrich the soil and would not seem to interfere with production of a healthy crop. We are now experimenting with this method.

I do not wish to give the impression that all fungi can be killed by burying them in soil. In fact many fungi thrive in the soil and commonly live there. Many parasites, however, do not seem to withstand these conditions.

These experiments convince us that tomatoes should be planted on thoroughly fall-plowed land in the Middle East and Middle West where Septoria leaf spot and early blight are commonly destructive. They also seem to indicate that a farm can be put in a much better sanitary condition for tomatoes by plowing the old tomato vines under in the fall, at least whenever they are heavily infected by parasitic organisms.

The type of plowing done by many farmers is not thorough enough to control tomato blights. All the trash or crop débris must be thoroughly covered; in fact, it should be turned into the bottom of the furrow We have tried different ways of doing this on a practical field basis and now think that a plow equipped as shown in fig 14, is probably the most satisfactory, especially as the equipment is standard and easily adjusted. This plow as equipped will turn under tomato vines, weeds and other trash without previous disking. The rolling colter placed near the end of the beam, if kept sharp, cuts the trash; the jointer turns it away from the upper edge of the furrow; the chain drags any escaping material into the furrow and the well curved mold board turns the layer of soil completely over instead of on its side and hence buries all débris.

Fig. 15 shows the equipped plow in use in an abandoned field of early tomatoes in which weeds and grasses have grown as high as a man's hips, as may be seen by comparing their height with that of the horses. Unfortunately, the camera tripod was fully extended when this field was photographed, which makes the weeds look shorter than they were. This heavy mass of old vines, weeds, and grasses was completely covered by the plow without any previous preparation of the field. A few of the upturned rootlets show, but all of the surface material was buried. This kind of plowing will give better control of Septoria leaf spot and early blight of tomatoes than spraying and dusting and at much less expense. Moreover, it can be done in late fall or early winter, when there is more spare time than in midsummer.

Tomatoes and other cultivated crops should be kept clean during the growing season. Horse nettle, jimson weed, ground cherry, and black nightshade—weeds closely related to the tomato and potato—are readily infected by the Septoria leaf spot fungus and a number of other tomato parasites, and should therefore be kept out of the fields as much as possible by clean culture. Moreover, small fragments of the previous crop not buried by the plow should not be allowed to lie on the surface if they can be covered by means of the cultivator.

Several varieties of tomatoes developed by the United States Department of Agriculture and one developed jointly by the Department of Agriculture and the Maryland Agricultural Experiment Station are somewhat resistant to Septoria leaf spot, early blight, and leaf mold. Of these varieties the Marglobe offers most promise for shipping or for the dual purpose of shipping and canning. The Marglobe and a number of the others, viz., Columbia, Norduke, and Norton, are excellent canning varieties and are now being tested with other varieties on the Eastern Shore by the Maryland Agricultural Experiment Station. The results of these tests should soon indicate which of these varieties are best adapted for this region and how they compare with the varieties most commonly used. With the exception of Marglobe, which is early, these varieties are a few days later than Greater Baltimore and Stone, but if planted early they should produce a heavy crop, as they bear much longer and possess more

resistance to diseases. Moreover, it is quite possible that earlier strains of them can be developed.

The tomato crop is sometimes greatly injured or destroyed by non-living agents. The leaves and stems become discolored and the plants gradually die. Such effects are often caused by severe droughts. A shortage of nitrogen also causes yellowness of the leaves, which starts between the veins and spreads over the surface. A deficiency of potash also frequently causes scorching of the margins, which spreads toward the center and causes the leaves to become dry and brown. These starvation symptoms may be mistaken for blights.

Floods in southeast Florida where tomatoes are grown on a marl soil, cause rotting of the roots and death of the plants. The rotting is doubtless caused by organisms but occurs only during floods. Under such circumstances the plants are affected more or less with nailhead rust and other diseases as usual and have a generally blighted appearance, but are destroyed by the floods. After the floods in the winter of 1925-26, it was observed by the Florida growers that the Marglobe variety possessed enough vitality to develop new roots and by fertilizing the recovering plants heavily, they obtained an excellent crop; in fact, the most profitable tomato crop they ever grew. This crop had previously received the customary 3,000 pounds of 4-8-4 or 5-8-5 fertilizer per acre in five applications and from one to two tons of stable manure when the plants were set, and yet the floods had leached out so much of the soluble plant foods that it was necessary to make another heavy application to produce a crop.

Tomatoes in southern Maryland and in many parts of Indiana the past year had approximately the same appearances as those flooded Florida tomatoes before they were refertilized. There was very little Septoria leaf spot and only a moderate amount of early blight in these fields. Most of the damage was therefore due to the floods. Possibly a little more attention to top dressing and refertilization under such circumstances would convert a loss into a marked profit. At any rate the grower should learn to distinguish blights from these near blights if he wishes to apply the proper remedy.

PLANT BED STRUCTURES AND THE PRODUCTION OF EARLY PLANTS

By W. B. NISSLEY,

Specialist in Vegetable Gardening, State College, Pa.

The most successful vegetable growers in Pennsylvania agree that the best way to grow good plants is the greenhouse way, and the best place is at home. These larger growers have adequate plant growing equipment for raising their own plants, and in some cases offer plants for sale. We are trying to have the small vegetable grower and the farmer who raises some vegetables in connection with his farming operations to adopt this method of growing their plants. They are, however, handicapped in having poor plant growing equipment, or none at all.

For Pennsylvania conditions adequate plant growing equipment consists of greenhouse space, hotbeds and coldframes. Hotbeds and coldframes alone are not early enough to produce the desired early plants. So that generally speaking, we consider the greenhouse as a February proposition for starting cabbage, cauliflower, lettuce and other cool plants. It is also a March proposition in the starting of tomato, pepper, eggplant and other warm plants. These latter plants may also occupy the house during part of April. The hotbed is a March proposition for the cool plants and an April proposition for the warm plants. The coldframe is an April proposition for the cold plants until they are transferred to the field, and also a late April and early May proposition for the warm plants.

Hotbeds and coldframes are easily constructed and not very expensive, but most small growers hesitate in erecting a small greenhouse large enough to take care of their plant growing purposes on account of cost. We have, therefore, designed a small sash greenhouse 9 feet wide and from 15 to 21 feet long that will not cost more than 100 dollars when all material is purchased, and in cases where some material can be used from the farm board pile the cost has been reduced to around 60 to 80 dollars. We have erected 100 of these in Pennsylvania this spring and as many requests came from

outside the state. When you make the cost attractive to the grower he usually does not hesitate in putting up a small house to be used during the spring months.

Where one is located in a vicinity where greenhouse plants, properly hardened off, can be purchased at a reasonable price locally, then it will probably not pay to grow your own plants. I will not go into the construction of the hotbed and the cold-frame. These are fairly well understood by growers, and if not, there is information available from each State Experiment Station. I am, however, submitting a photograph and a list of materials with method of procedure in erecting the small greenhouse mentioned above.

Materials for Sash Greenhouse 9′ x 18′

Foundation

4 Corner Posts approximately 6″ x 6″ x 6′ square or round.

4 Posts approximately 6″ x 6″ x 6′ spaced every 6′ along sides (2 on each side).

or

4 Corner Posts 6″ x 6″ x 6′ square or round.

13 Posts about 2″ x 4″ x 6′ spaced every 3 feet along sides (5 on each side) and 3 along rear end. The door frame will act as a support at the other end.

Posts from the farm wood lot will be satisfactory. Material used should be Locust, Chestnut, White Pine or other rot resisting wood.

200 board feet of sheathing—Yellow Pine.

200 board feet of siding or weather boarding.

72 feet of 32″ width, roofing paper (2 rolls 36″ long).

Roof and Gables

12 Standard Sash (glazed) 3′ x 6″.

1 Ridge Pole 2″ x 4″ x 18′.

14 Rafters 2″ x 4″ x 6′.

2 Eave Plates for sides 2″ x 4″ x 18′.

2 pieces for ends 2″ x 4″ x 9′.

All 2″ x 4″ material of Hemlock.

I Box 10″ x 12″ glass (60 sq. ft.) for gables.

1 Door 6′ x 2½′ Douglas Fir.

1 Door frame.
20 feet of 1″ x 1½″ rabbited strips for gable bars.

Benches and Interior

140 Board feet of sheathing for benches (bottoms and sides).
6 Bench Legs 2″ x 4″ x 3′.
3 Cross Pieces from bench legs to wall, 2″ x 4″ x 3½′.
1 Second Hand stove.
24 feet of stove pipe.

Hardware

Nails—20 penny or spikes for nailing eave plate to posts.
10 penny or 8 penny nails for nailing rafters to ridge pole, rafters to eave plate, sheathing, siding, etc. 3″ finishing nails for nailing sash to rafters and eave plate.
Shingle nails for weather stripping edges of sash.
4 hinges for ventilating sash.
2 strap iron strips (punched) one for each ventilating sash.
Door fixtures.
Galvanized coping for ridge pole.

Position of house (will depend upon circumstances) preferably North and South. Door end to south.

Place all posts in position. Nine feet width to outside edge of posts, 18′ long to outside edge of posts. Corners square. Saw off tops of posts, same slant as rafters, see blue print. Spike the 2″ x 4″ x 18′ eave plate to outer edge of post. Cut out rafters and erect rafters and ridge pole to position. Nail with 10 Penny or 8 Penny nails.

Nail sheathing to posts all around the house.

Place door frame in position.

Take part of roofing paper and lay 2″ wide strips on face of rafters and 4″ wide strips on face of eave plate. Nail on the sash with 3″ finishing nails.

Apply roofing paper next to sheathing and nail on siding or weather boarding. Apply gable bars and glass in gables. (Glass should be tacked in place with brads, in the usual way, then puttied).

A wooden weather strip or a strip of roofing paper should be placed over the crack where the sash join each other on the rafter.

Finish details in the order you desire.

Make the benches on the inside according to the plans. Place stove at North end of house, suspend stove pipe under the ridge pole to South end of house. Houses that are much longer than 18′ should have a home-made hot water system in addition to heat from stove and stove pipe.

This house is cheap, tight, and thoroughly practical for the small grower. The materials used in this house exclusive of heating, estimated on 1926 lumber prices in Pennsylvania will not cost over $100.00. In most cases the cost in those already erected was further reduced by $25.00 to $30.00 by using posts from the wood lot, and sheathing and bench material from the farm board pile.

In the growing of early plants the preparation of the soil for seed sowing and transplanting should be given consideration during the previous summer. A good method is to make a compost pile using alternate layers of manure and soil, or manure, soil and sod to which some lime has been added. Some growers place the soil on one pile and rot the manure on another pile in the following way: Place the manure on a flat pile not more than several feet thick. This is done in the spring. Cover the manure with a thin coating of soil. The rains during the summer will penetrate the manure and the heat will thoroughly decompose it so that it will practically all pass through a half inch screen by fall. Ordinarily, when manure is placed on a pile the outside of the pile does not decompose on account of its easily drying out. The next winter the soil and rotten manure is mixed together half and half. The method of preparing your soil for seeding and transplanting will differ slightly in different sections. It is necessary to have soil that drains well, that contains a large amount of organic matter in order to hold moisture, and that does not bake or form a hard crust on top after watering.

It is very important to use the best seed obtainable. Advice can often be secured through the Experiment Station, or the Agricultural College, or through the County Farm Bureau. Seed sowing should not require as fertile a soil as transplanting since in growing plants, as outlined above, the small seedlings are transplanted when they are about two weeks old and before they have their first true leaves. The soil for trans-

planting purposes should contain more plant food. Some growers will add from one pint to a quart of bone meal to a wheelbarrow load of soil; others will use a little tankage or dried blood to give the plants a little start, and others will add only acid phosphate in case the soil contains enough nitrogen. However, the transplanting soil should not be too fertile on account of the plants growing too rapidly which means a weak, succulent growth. Seed is usually sown in small flats or shallow boxes that are two to three inches in depth. The width and length vary, ordinarily from 12 to 18 inches wide and about 20 inches long so that they can be easily carried. In this way the plants in boxes can be easily shifted from greenhouse to hotbed or from hotbed to coldframe, or from the coldframe into the field. The boxes are used for seed sowing and also for transplanting and the size should be determined by the width of bench in the greenhouse so that there is most economy of space. Cabbage, cauliflower and lettuce plants are usually spaced one and one-half inches apart each way; celery plants may be spaced a little closer. These crops are only transplanted once, that is from the seed flat into another flat. Tomatoes, peppers, and eggplants are usually transplanted two inches apart in flats, and often shifted a second time into pots or other flats spaced about four to five inches apart.

Our growers' experiences with southern grown plants that are shipped from as far south as Georgia, South Carolina, or Alabama have not been the best, so that we are trying to have our smaller growers adopt the practice of growing their own plants the greenhouse way.

REGIONAL PRODUCTION AND COMPETITION IN THE MARKETING OF VEGETABLES

By E. W. STILLWELL,

Bureau of Agricultural Economics,
U. S. Department of Agriculture.

Competition between producing sections in the marketing of perishables always has existed, but it never has been as keen as during the past few years. Car lot shipments of these crops have almost doubled since 1917 and now total about 1 million cars annually. The marketing problems of the in-

dustry are further appreciated when it is realized that during the same period the population has grown only about 12½ per cent. The fruit and vegetable industry has assumed an amazing magnitude. In 1925, the estimated farm value of these products reached a total of one and a half billion dollars.

Vegetables constitute an important part of the industry and have contributed in a large way to the expansion just mentioned. While figures are difficult to follow, the use of a few may be worthwhile and of interest to you. Total shipments of 14 important vegetables, exclusive of sweet potatoes and potatoes, increased from around 100,000 cars in 1917 to over one-quarter of a million in 1925. In this group lettuce and spinach provided the most spectacular fireworks, the former jumping from 5,400 cars in 1917 to 37,300 in 1925, and the latter from 1,300 to 8,000. However, even cabbage and onions, which usually are considered relatively stable, contributed to the advance, the former increasing from 20,400 cars to 40,000 cars and the latter from 19,200 cars to 31,000 cars.

These increases are outward manifestations of recent changes, changes not only in production but in the diet of the average family. The opening of new and fertile areas well adapted to the growing of fruits and vegetables, especially in southern Texas and in certain western states, has resulted in the concentration of truck areas and in largely increased acreages. Throughout the South the same results have obtained, due partially to the ravages of the boll weevil and partially to the efforts of farm leaders to secure greater diversification of crops. Soil and climatic conditions in many parts of the South are favorable to the production of vegetables and therefore growers turned naturally to them. All of these increases have taken place without proper consideration of the effect of greater production upon market values. Markets have been glutted at rather frequent intervals, prices have been unsatisfactory to growers and old established trucking sections and industries have been subjected to ruinous competition from nearby and distant sources, as may be evidenced, for example, by the demoralization of the hot-house branch of the lettuce industry in the East due to the liberal and increasing supplies of western lettuce.

The competition of nearby and distant areas perhaps is even more graphically pictured when a study is made of the carlot receipts at important markets. For instance, figures showing carlot and l. c. l. and boat receipts reduced to carload equivalent in New York City for 1925 show the receipts of over 160,000 carloads exclusive of bananas. Carlot receipts in Philadelphia during that year were over 42,000 and this figure of course is exclusive of vast quantities of l. c. l. and truck receipts. The record for Philadelphia covered 64 commodities which originated in 38 States, and 6 foreign countries. This means competition with a capital "C." During many months receipts of individual commodities from 6 to 8 states was common. In July 1925, for instance, 17 carloads of Maryland cantaloupes were found to be in competition with 563 carloads from 7 other states, including such widely separated ones as California, Georgia and Delaware.

All of this means that individual growers, especially here in the East, must make a careful study of such information as is available if they expect to grow and sell vegetables at a profit. It is difficult, especially in a brief talk, to make any definite recommendations for your guidance. It is certain, however, that the production of high quality products is essential if any section, or any grower, is to remain permanently in the vegetable growing business. Only a few years ago Georgia and Florida growers increased very largely the production of cantaloupes. Today that industry in those states has almost disappeared because of lack of quality caused either by carelessness in growing and grading or because climatic conditions precluded the production of high quality stock. Cantaloupes so produced and handled could not successfully compete with the superior quality and pack shipped from far western states. Many other instances equally as striking could be cited.

It is difficult for the grower or anyone else to see clearly just which way to turn. He is well aware of the competition to which he is subjected both from nearby and distant sources. In fact the amount of discussion which is being carried on in an endeavor to work out a proper production program in various sections indicates that the average grower is in somewhat the same position as the colored man in the following

story:—"During the war a troop of colored soldiers were sent to the front line trenches. Their Captain had received orders that they were to be sent over the top the following morning. He was somewhat apprehensive as to how they would act under fire and sought to obtain a little information by interviewing one of them. 'Smith', he said, 'you may have to go over the top one of these days and if you do you are likely to find yourself in a tight place. Suppose that just after you had climbed up over the top of the trench and were going forward with your bayonet set, all ready to charge over the enemy trenches, you looked up and suddenly saw about 40 Germans coming toward you, their bayonets set, firing their guns and yelling, what would you do?' 'Well, Sir,' said Smith, 'I certainly would spread the news.'" And so, like the colored soldier, growers, extension leaders and others have been spreading the news that truck crops were being grown in such quantities that profitable prices were rather exceptions. But the "Germans" have not been stopped.

The Bureau, through the release of periodic estimates of the acreage and prospective production of truck crops and through the release of daily reports showing the movement of these crops to market and the prices which are being received for them, has sought to keep growers informed in order that they may intelligently plan their farming problems. In addition to these regular releases, periodic reviews summing up the various conflicting factors affecting the marketing of individual crops have been issued, and for the past two years an outlook report has been released in an attempt to assist somewhat the plans which each individual grower was making. These various reports I commend to your careful attention, not expecting that they will solve all of your problems, but hoping that they may aid you toward a gradual adjustment upon a sound basis.

In going over some of these reports and figures recently I gleaned a few facts that I think may be of some interest to you. I found, for instance, that *tomatoes* is one of the few truck crops the acreage of which has not increased the past few years. The estimated acreage grown for market in the United States in 1926 was about 115,000 acres as compared with 150,000 acres in 1924, a decrease of over one-third. Un-

der such conditions an increase in price might reasonably be expected, yet the average price per crate to growers in the United States actually decreased from $2.07 to $1.80. It is difficult to say whether the increase in production of other truck crops has lessened the demand for tomatoes or whether increasing supplies of all truck crops have lowered the general price level for all. The heaviest carlot movement to market from all states, over a series of years, takes place in June and in September. Maryland ships the bulk of her crop during the month of July, with smaller shipments in August, September and October. She faces the greatest competition in July from distant states, although those on the Eastern Seaboard normally contribute about ¼ of the total shipments.

Maryland growers produce but little *asparagus* compared with other sections, but it may interest some of you to know that United States shipments have increased from 491 cars in 1921 to 1,933 in 1926. Most of this gain is due to a very large increase from California, although South Carolina also has shown a gradual increase. Shipments in April during the past few years have been considerably heavier than for any other month and they generally drop off rather sharply in May. According to our records the Maryland crop moves to market in these two months. If someone could only influence the growth of asparagus so as to delay the harvesting of the bulk of the Maryland crop until May it might help.

Cucumber growers in Maryland are in a somewhat different position than those who raise tomatoes and cantaloupes in that their principal competition comes from Eastern Seaboard States. For instance, in July when Maryland moves most of its crop to market we find Eastern Seaboard States supplying about 60% of the total carload shipments, in addition to the 25% supplied by Maryland. The lighter shipments from Maryland in August run into still heavier competition from Eastern Seaboard States, which supply 80% of the total shipments. The total United States acreage has increased slightly from 36,000 acres in 1924 to 39,000 acres in 1926. Prices, as might be expected, acted in a reverse manner in this same period and the average farm price per hamper dropped from $1.57 in 1924 to $1.33 in 1926. Maryland growers appear to have been unusually unfortunate in their

judgment with regard to growing this crop. They increased their acreage from 1,420 to 2,080 in 1926 with a consequent price drop from $1.54 to 56¢ per hamper.

On the other hand, although the acreage of *spinach* in the United States has increased 50% during the past 3 seasons, Maryland growers have maintained theirs on a practically level basis. The apparent wisdom of this course is indicated by the farm price figures which show that although the average price per bushel for the United States decreased during the period from 68¢ to 54¢ the price to Maryland growers in creased from 50¢ to 63¢. While this may be taken as a faforable indication by Maryland growers, it is not advisable for them to be too optimistic and it is believed it might be well to consider the possibility of bringing in most of their production during May rather than April. During the past few years the heaviest shipping months for the United States have been March and April, whereas Maryland has moved its crop in April and May. In April Maryland shipments constitute such a small percentage of the total that prices, usually relatively low, are governed entirely by competitive supplies, 75% of which come from other Eastern Seaboard states. Maryland shipments in May, on the other hand, have constituted about 50% of the total, the balance coming mostly from other states on the Eastern Seaboard. Maryland production, therefore, might well be delayed and certainly should be adjusted to meet competitive production in Eastern Seaboard States.

Figures for *cantaloupes,* and this is the last crop I shall mention specifically, show the overwhelming influence of the production in distant, especially western, states. Maryland's cantaloupes move in July, August and September, heaviest shipments usually being in August. In this month Maryland shipments constitute only about 15% of the total and they are even less important in July and September. Other Eastern Seaboard states supply from 10 to 15% in August, the balance, almost ¾, coming from distant states. Cantaloupe acreage and shipments have been steadily but gradually increasing over a period of years. It is certain that Eastern growers cannot remain profitably in cantaloupe production unless much greater care than ever before is paid to cultural

practices and to grading and packing. The lesson of the decline of the industry in Georgia and Florida and the reasons therefor should not be forgotten.

Each of the crops I have mentioned justifies considerably more detailed consideration and other crops probably should be included but time prohibits. However, I hope that I have by these brief references served to show how some of the material which we have available may be used in considering your problems.

In closing I want to mention briefly the development of the trucking industry in southern Texas, which is perhaps the most vital, the most significant and the most striking feature at the present time. In 1926 Texas shipped about 37,000 cars of fruits and vegetables, mostly vegetables. That total was 9,000 more than were shipped in 1925 and more than double the shipments of 1923. This year it is expected that the acreage of tomatoes in the lower Rio Grande Valley will be almost double what is was last year and growers have expanded their acreage of spinach about 12½ per cent. above that, which last season produced 1,200 more cars than its predecessor. The acreage of potatoes also is expected to be increased. Soil and climatic conditions in that section seem favorable to the production of vegetables and it is not improbable that the increase which has occurred during the past few years will continue. The increased acreage devoted to truck crops in Mexico and Louisiana also should be watched carefully.

I think there can be no satisfactory conclusion to such a talk as this unless it be to urge that all available sources of information be utilized to the fullest extent and that the trends of production in various sections be watched carefully. However, after all that is done it would seem that the only thing that is going to enable you as individuals to maintain the production of vegetables in competition with new areas and increased production in old areas is the growing of high quality stock and the packing and preparation of this stock for the market in such a way that it will sell at a premium over or on a par with the best stock from other sections.

HOW WILL VEGETABLE GROWING IN MARYLAND BE AFFECTED BY THE MEXICAN BEAN BEETLE, THE JAPANESE BEETLE AND THE EUROPEAN CORN BORER?

By ERNEST N. CORY,

State Entomologist, College Park, Md.

The Mexican Bean Beetle

The Mexican bean beetle is now distributed in Western Maryland throughout Garrett County and on the borders of Allegany County. From these counties it will undoubtedly spread eastward to some extent, though the general trend has been northeastward. The beetle has been located by federal scouts in the Shenandoah Valley and on the eastern slope of the Blue Ridge in Virginia, so that Washington and Frederick Counties, and the rest of the western part of the state, are threatened by an invasion from these two centers of dispersal.

The beetle in Allegany County did serious damage to garden beans, necessitating the treatment of infested plants with poison dusts to control it. Fortunately, however, the beetle can be controlled by the dusting method or by spraying, if the solution is directed toward the underside of the leaves. When it reaches the districts where beans are grown for market or canning purposes, it will be necessary for the growers to adopt dusting for the control of this beetle as a regular practice. To that extent it will add to the cost of production and involve the question of arsenical residues upon the grown beans. Experimental work to date seems to indicate that it may be possible to substitute sodium fluosilicate as the controlling dust. Further experiments along this line will be conducted to determine the efficiency of the material in this state before the beetle gets into the commercial bean growing districts.

The beetles hibernate as adults in woodlands adjacent to the bean fields and appeared this year in Garrett County about the first week in August in numbers, though undoubtedly some breeding occurred prior to that time. In the south the beetle leaves its hibernating quarters early in April and the females deposit eggs after feeding for a few days on the young beans. These eggs hatch in from five to fourteen days, depending

upon the temperature. The larvae of the first generation develop rather slowly and they may require five weeks to complete their growth. Later generations average about twenty days in the larval stage. The pupa period during summer averages about seven days, making the total for development from egg to adult in mid-summer about thirty-three days. The females begin depositing eggs about two weeks after they emerge from the pupa. Judged by their activities in Garrett County this year, it would seem probable that three generations will occur in Maryland when the infestation reaches the lower levels.

The adult resembles very closely the common squash lady beetle, though it is somewhat smaller, usually being marked with sixteen black dots on the wing covers. The eggs are laid in masses on the underside of the leaves and the larvae hatching therefrom feed on the underside of the leaves. The larva is a spiny, yellow creature, about one-quarter of an inch in length. They usually feed in clusters until they have nearly attained their full growth, when they separate and finally pupate on the leaves, stems, or on adjacent weeds.

The Japanese Beetle

The Japanese beetle has reached the borders of Maryland, and while this state is not at present in the quarantine area it may be included next year. If the natural spread reaches our state every farmer should be on the alert to locate the beetles when they first reach here in order that control measures may be applied promptly. Up to date the damage to truck crops has not been very great except in isolated instances in sweet corn, but the presence of the beetles in market gardens makes it necessary for the inspection and certification of farm products under federal supervision and this naturally results in a considerable disturbance of trade. Where the beetles are plentiful they tend to injure the silks of corn, preventing its fertilization. However, the principal damage to date has been confined to fruits, trees and flowers. Late fruits may be protected by arsenical sprays, and a pyrethrum soap solution is effective as a contact spray. This material is being manufactured under the name of Pyrethrol (formerly Kilspray) by the McCormick and Company, of Baltimore.

By the use of this material householders may protect flowering plants, grapes and other products that are injured by the beetle.

The two most important points to be borne in mind in connection with the life history of the Japanese Beetle are that the period of flight occurs from June 15 to October 15, during which time the adults injure various crops and deposit their eggs in grasslands; the other point is that the grubs live practically ten months in the ground and during a large portion of that time feed upon grass roots, ruining lawns and golf courses. The grubs may be controlled in grasslands by a thorough application of carbon bisulphide emulsion applied in early spring.

The lantern slides will give you a better idea of the beetle, its activities and life history than could be given by a mere description.

The European Corn Borer

The greatest menace to Maryland agriculture that the farmers have ever faced lies in the probable invasion of Maryland this year by the European corn borer from the Pennsylvania infestation, which is less than fifty miles from our western border, and which is also around the head waters of the Susquehanna River, with the probability that the flood waters may bring infested material into this state, particularly in Harford and Cecil Counties. In addition, an infestation occurs at Bayonne, New Jersey, which may serve as a source of invasion.

The European corn borer was first discovered in 1917 near Boston, but probably had been in this country for some years prior to its discovery. It was found in 1919 near Schenectady, New York, and has since become distributed in Pennsylvania, West Virginia, Ohio and Michigan, in addition to a northward spread into Canada and in the New England area to New Hampshire, Maine and Connecticut, and an isolated infestation at Bayonne, New Jersey.

The infestation in New England is normally two brooded, while in the New York area and westward it is single brooded. The moths which appear about the middle of June are laid upon the under surface of the corn leaves, each mass contain-

ing about fifteen to twenty eggs. The eggs hatch from four to nine days. The young borer immediately after hatching is about 1/16 of an inch long, and usually feeds upon the surface of the leaf near where it hatches or in the tip of the stalk. Where the tassels are infested they are very likely to break over and thus serve as an indication of the early infestation. The larvae migrate to other portions of the plant and the full grown borer may migrate into the ear. In the latter case they are quite likely to burrow directly through the cob and because of this habit may be distinguished from the corn earworn infestation, which is usually a superficial feeding.

The insect winters over in the larval stage in cornstalk stubble and refuse on the ground, pupating in the spring. The amount of damage varies with the intensity of the infestation and has run to total loss in sections of Ontario. It is a very serious pest of sugar corn, due probably to the weaker stalks, and the fact that a single worm in the ear ruins the corn for market. The date of maturity of the corn has a decided bearing on the amount of injury, and in Ohio it is suggested that sugar corn grown in the infested area will escape major injury if the date of maturity is considered in connection with the date of appearance of the moths.

The control of the European corn borer is dependent upon attacking the insect in its most vulnerable stage, the larva in the stalks and stubble, shredding and ensiling all corn parts before feeding, together with the plowing down of all stubble prior to May 1st and the burning of such refuse as is left from feeding, constitutes the principal hope for a successful fight against this pest.

When the insect occurs in our commercial sweet corn growing areas, there is no doubt but what the insect will do a tremendous amount of damage, both to market corn and the canning crop. Active scouting to determine the first appearance of this moth will be done next season and an intensive campaign to acquaint the farmers with the insect and its activities will be started at once. This Association can assist us in disseminating this information by arranging for local meetings and by assisting in the distribution of the printed matter

which will be ready shortly. The lantern slides about to be shown will help you to become familiar with this pest.

Reports of Committees

The auditing committee reported that the Treasurer's accounts were in good order and upon motion the report was accepted.

The following names were presented by the nominating committee:

President, JOHN E. PATTEN, Cambridge, Md.
Vice-President, W. N. EYLER, Cumberland, Md.
Secretary-Treasurer, W. R. BALLARD, College Park, Md.
MEMBERS OF THE EXECUTIVE BOARD:
A. M. TODD, Sparrows Point, Md.
H. F. EMMEL, Baldwin, Md.
W. G. SMYTH, Chestertown, Md.
Director for Maryland Agricultural Society—The Maryland Farm Bureau Federation, BOYD G. MERRIT, Fork, Md.
Delegate to the Annual Meeting, W. R. BALLARD, College, Park, Md.
Director for Agricultural Corporation, A. K. AUSTIN, Cambridge.

The report of the nominating committee was adopted.

Resolution Passed by the Maryland State Vegetable Growers' Association

WHEREAS: The geographical position, favorable climate, suitable soil and nearness to the great Eastern markets has caused the unusual development of the truck crop and market garden industry of this state amounting to more than $20,000,000.00 annually—and

WHEREAS: In the development of this industry there has arisen many problems for investigation, needs for instruction and information for extension for the benefit of the growers throughout the State—and

WHEREAS: The President and Board of Regents of the University of Maryland have requested the Governor and Legislature to provide an adequate horticultural building in which provision would be made for this work.

Be it therefore resolved: That the members of the Maryland Vegetable Growers' Association at its Ninth Annual Session hereby endorse the request for a horticultural building at the University of Maryland, and urge the Governor and members of the Legislature to favorably consider this request:

Be it further resolved: That a copy of this resolution be sent to the President of the University, the Chairman of the Board of Regents, and to the Governor of the State of Maryland, and all members of the Legislature.

REPORT

OF

Ninth Annual Meeting

OF THE

Maryland Sheep Growers' Association

Baltimore, January 5, 1927

The ninth annual meeting of the Maryland Sheep Growers' Association was held in Room K of the Rennert Hotel in Baltimore on Wednesday, January 5. About 40 members were present.

In the absence of the President, Senator Humphrey D. Wolfe, the meeting was called to order by the Secretary, Mr. K. A. Clark, as follows:

THE SECRETARY: Gentlemen, if you will come to order, I will make an announcement that will disappoint all of us, temporarily. Our President, Senator Wolfe, has not yet arrived. He said he would be here, though, and he is a man who keeps his word. I doubt if it is wise to wait upon him longer in view of our rather full program. At the warehouse inspection this morning I was talking with a man who asked me who was giving us this lamb chop luncheon that we are to enjoy today noon. I told him the sheep growers and their friends were to be guests of the Baltimore Union Stock Yard Company. We are all invited to go out there to that luncheon —you are welcome to do so whether you are personally invited or not. When I told him that, he said, "Well, I am going out there anyway, because this will be the first time I have ever taken anything out of the stock yards company for nothing in my life." Since Senator Wolfe has not appeared, I think it would be advisable to appoint one of our members to act, temporarily, as our Chairman. Who will you have for chairman, gentlemen?

A MEMBER: How about appointing Mr. Clark as chairman?

MR. CLARK: Mr. Clark from Howard County?

THE MEMBER: No. The one standing up there talking to us right now.

THE SECRETARY: I appreciate your suggestion, but I am Secretary, and cannot, therefore, hold two positions.

A MEMBER: I would suggest that we have Mr. B. E. Carmichael as Chairman.

SECRETARY CLARK: Mr. Carmichael, you are appointed temporary chairman. You will come over here and assume your duties.

MR. CARMICHAEL: I think it is best that we should move in a little closer because this is a very large room and I am sure if you do that we can all hear very much better and be much more comfortable. Now, in the absence of Senator Wolfe, I think we had better go ahead and get through with what we have. Therefore, the first number on the program is the report of the Secretary-Treasurer, Mr. Clark.

REPORT OF THE SECRETARY-TREASURER

By K. A. CLARK

College Park, Maryland

Mr. Chairman and Members of the Association:

I will not take the time to read the minutes of the last meeting unless demanded. I know most of you have read them before now in the report of last year.

I suppose you are as much interested in what the Association has done in the last year as you are in anything else. Perhaps the most significant part of our work has been the ram sale, held at College Park on Farmers' Day, the 29th of May.

On that occasion, 26 rams were sold. Sixteen of them were shipped in from Michigan, from Mr. Lou A. Wilson, of Quincy, Michigan; the others were recieved from different members in Maryland—4 of them came from Mr. H. P. Miller, 3 others came from Dr. C. H. Conley, one from Mr. Robert Murray, and one from Belair Farms. Every ram consigned by the Maryland breeders was from a member of the Maryland Sheep Growers' Association.

LIBRARY, UNIVERSITY OF MARYLAND

LIBRARY, UNIVERSITY OF MARYLAND

With regard to the Michigan rams, those rams were brought in here costing us $25.00, f. o. b. Michigan, plus the charges until after the sale. The Maryland consignors received exactly what their rams brought in the sale. There was no charge made the members for selling these rams.

As I stated, the sale was held on Farmers' Day at College Park. There were about two hundred people around the sale ring. It was a good day for the event.

Bidding was right sharp and the rams sold in very snappy order. An average price of $41.57 was realized on the 26 rams. Considering the fact that this was our first sale, that the rams for the most part, did not go into purebred flocks, and that they were sold in short fleeces, we considered they brought a very good price.

The lowest priced ram in the sale sold for $28.00, one ram brought $67.00. That ram sale created more interest and was more of a sensation, perhaps, than anything else that was pulled off that day. It was one of the best things that ever happened in this State to promote the sheep industry.

The Ram Sale was directed by the Maryland Sheep Growers' Association, but, if it had not been for two other organizations it would not have been the success that it was. I refer to the loan which the Baltimore Stock Yards Company made to buy the rams and publicity the B. & O. Railroad gave us. The Stock Yards Company loaned us the money to buy the rams, without interest, and I am happy to say that after the sale was over we had enough money to pay them back. The Baltimore and Ohio Railroad assisted us in advertising the sale and giving it publicity.

In addition to the rams sold on that day, the Baltimore Stock Yards gave $30.00 for a purebred ewe to be given away. The ewe was drawn for and Mr. Davidson of Belair Farms, a member of this Association, was the lucky party.

This Association sent to everyone of you, one complimentary copy of "The Breeders' Gazette," under date of April 17, which carried the picture of a Club Boy and his lamb from Worcester County.

The Breeders' Gazette is one of the best and foremost journals in its line and I think every Maryland Sheepman ought to have it regularly. That cost us $3.00. These copies were

mailed out from the offices of The Gazette in Chicago, and it didn't cost us anything for the papers—that $3.00 was for the postage. They charged only for the mailing.

At regular monthly intervals the News Letter has been sent out to our members. This is the first year the News Letter has been sent to members only. Before that time, our mailing list contained the names of many who were not members. It was decided at the last meeting to discontinue sending the News Letter to those who were not members, because the expense of getting a letter out each month is such that we cannot afford to send it to any except those who are willing to pay their membership dues.

We have sent out an average of 115 of these circular letters to members and the press at the beginning of each month, which would amount to somewhere between 1400 and 1500 letters in the course of the year just past.

This Association has asisted the Maryland Wool Pool to the extent of giving it some publicity through its letters, but, I regret to say, that is about all.

We must give more assistance this year than we were able to give them last year. I am sorry to see that more men have not pooled their wool.

Our Association at the present time has 79 members. We had 26 in 1925, 17 in 1924.

All bills of this Association are paid and we have a balance of $204.41 in the bank.

Now, I suggest, Mr. Chairman, that you appoint a committee to audit this account and to ascertain its correctness. I have the check book here and the other necessary data.

ADDRESS OF THE PRESIDENT

By SENATOR HUMPHREY D. WOLFE,

Glenwood, Maryland

Gentlemen and Fellow Members of the
Sheep Growers' Association of Maryland:

I am very glad indeed to have the opportunity and the pleasure of addressing you in Annual Meeting. I am sorry that I could not get here sooner, and regret that I was un-

avoidably delayed. I have no set speech and I am not going to detain you gentlemen. There isn't anything that I could say to you about sheep that you yourselves don't already know, and probably better than I do.

I want to say, however, that I am glad to see such an improvement in the flocks in Maryland. I think it is largely due to the use in recent years of purebred sires. We are raising better lambs than we once did.

I have always been very enthusiastic about having a few sheep on my farm. I have always thought there were greater returns from a flock of sheep than anything else in which a given amount of money could be invested on a farm.

I now have the pleasure of introducing to you Mr. K. A. Keithly of the Bureau of Markets, of Virginia, who was Warehouse Manager of the Eastern States Wool Growers' Federation. He will tell us what he knows about the wool pool. (Applause.)

SIX YEARS OF MARKETING VIRGINIA WOOL AND SOME OF ITS RESULTS

By K. A. KEITHLY

Richmond, Virginia

Mr. Chairman and fellow workers and producers of the sheep and wool industry:

From appearances here there must be much interest in this subject. I want to try and give you some ideas of what the functions of the Wool Growers' Association are, because I feel that the valuation of your product, when you ship your wool to the Eastern Wool Growers' Federation is somewhat influenced by your understanding of its function.

First, I am going to tell you about some of the mistakes we have made. We very often paint too many rosy pictures. Six years ago we decided in Virginia that the Virgina Wool Grower was not getting full value for his wool, mainly because it had a lower shrinkage basis than the wool from many other states and because the farmer did not sell it according to grade. We started on a procedure to correct this, trying to get the producer interested in pooling his wool.

One of the County Agents of your State was County Agent of Washington County, Virginia, at the time our wool pool was started. That same man is now working with you. His county pool is scoring good. It looks to me like he is backing up our work pretty well.

We tried to interest the growers of wool in the dollars and cents of more systematic marketing. Some of them took the impression that we were promising high prices. This is a very dangerous thing to allow to occur. It can be prevented if those representing the pool positively point out that the wool will be sold on the basis of its grade and for the very best price obtainable,—no more, no less—which price cannot be foretold.

This situation sometimes confronts us. We have wool enough and we are strong enough to hold it. Dealers have wool in their hands and they are strong enough to hold it. We will have a real fight with the mill. In other words we must be organized to the extent that we can put the organized producers up against the organized manufacturers. Then we may come nearer getting what we want.

You are handling your wool pool very efficiently. More cooperation is necessary. In our organization we have a 5 cent penalty which covers loss on all wool sold outside the corporation—I beg your pardon—organization. (Laughter) That comes under liquidated damages. We have had very few members who had to pay that liquidated damage fee of 5 cents a pound on outside sale. We have but little trouble that way.

We have had a few growers who refused to ship the wool. We find an average for the county and an average for the state and that is averaged according to the prices paid. We have figures showing the average for the period during which the wool was pooled, a 12 month period.

In one county of your state the average price was 43¼ cents—that was not the price prevaling throughout that state during that period, but at that particular point we had a peculiar kind of competition from a man who got a large proportion of all the wool in that particular county.

One result of our organization has been that the wool grower in Virginia has made a great deal of progress in taking

care of the fleece. Six years ago we only handled 65,000 pounds. That year in handling our output we had a man who could only grade about 3,000 pounds a day because of the fact that the consignors had used sisal twine. Nearly every grower in Virginia had been told not to use sisal twine, yet many of them used sisal twine, which is absolutely prohibited. That use of sisal hemp lowers the value on your wool. I will tell you why. Suppose that wool is made into a suit of clothes and some of the sisal gets into the cloth. That little piece of hemp will not take the dye at all and you have a proposition where a whole piece of goods is spoiled because of it. You would not want a suit made of such material and neither does anyone else. Our growers are permitted to use only paper twine. We do not ask for any special kind of fleece bags. In fact we don't ask for a whole lot, but we do want them to tie their fleece clean, with the flesh side out. Paper twine is really an investment. It gives your wool a neater appearance.

The twine isn't usually taken off unless the grader finds or suspects some foreign matter tied up in the fleece. When a man has been handling wool for a long time, he cannot easily be fooled when he picks up a fleece. He knows when it "feels" right, and if it does not, he is liable to open it. He may find a rock in there, or something else to help the weight of the fleece! (Laughter) I want to say that we haven't found any rocks in Maryland wool but they tell me they have found it in wool from some other states.

Our people have found out another thing in keeping up the interest of the members. We have conducted a great many local grading demonstrations, taking this wool grader wherever we could get a carload of wool. Nothing is more interesting to the man who has wool than to know just what his product is with reference to quality. Those demonstrations were well attended and the result was most gratifying. I believe that has been an important feature of our work.

When we incorporated we had members who were producing from 1,000 to 3,000 pounds of wool a year and we had just about 1,000 active members. We took the wool and graded it and then for some reason—I don't know just what the cause of it was—we didn't get to sell the wool as early as we

would have liked. Probably about 40,000 pounds of wool was lost to us the following year on this account.

The next year the pool changed managers. The manager sold the wool in July and that year the wool sold higher in November, which caused a great deal of dissatisfaction and much withdrawing. We explained these difficulties to our people and now they do not expect us to sell their wool as quickly as they once did. Therefore, it seems that we may be making some progress.

We have a grader now who can handle from 15,000 to 18,000 pounds of wool a day and do it accurately. He is not only saving us his own wages by his ability to work faster but he is also saving us on other expenses, because it takes six or seven men to wait on this grader as assistants, and we are able to do that with the help of the Wool Growers' Associations or the Sheep Grower's Associations, such as you have here in Maryland.

This year you started out so late that you didn't really have time to circulate much information about the pool.

The Association to which you now ship your wool, furnishes the bags and makes advances of 50% of the estimated market value if it is requested by the grower. We are thinking of making an advance to every member on his wool, whether he requests it or not. It would simplify our bookkeeping, etc.

You may be interested in looking at Mr. Stewart's records, that will give you a considerable amount of information. He has the records of all the members of the Wool Growers' Federation in his office.

The weights and shrinkages of wool vary considerably. For instance, we started in with 20 bags of Virginia wool and graded up to bag No. 200 and then started grading Maryland wool the same way, from No. 201 up. Your Maryland wool averaged 20% more in weight than the 20 bags packed in Virginia. This packer did not know whether he was grading wool from Maryland or Virginia. Your shrinkage is higher. The grades that shrink most are the ¼ and ⅜ combing grades. There is more demand for those grades today than there is for some of the heavier grades.

If any questions have occurred to you which you would like to ask, I shall be very glad to answer them, if I can. (Applause)

DISCUSSION

THE SECRETARY: Mr. Keithly, how are we going to change a situation that has existed for some time in Maryland? I presume the same thing is true in other states. I refer to localities where there are only one or two buyers. They loan money to the farmers and take their lambs and wool in return. They have the grower "sewed up" so that he cannot ship his wool. How are you going to get hold of it? They are practically under contract to sell their wool to that buyer.

MR. KEITHLY: You would have to let him sell to that buyer for that year, because that advance made to the grower is a contract, when he accepts it. That is why we make that cash advance on the price of the wool, to overcome the activities of that kind of buyer. A clause in his contract with the association probably could be worked out covering that.

THE SECRETARY: You advance one-half. I take it.

MR. KEITHLY: Yes, we advance *about* one-half.

Questions by Members:

Q. What percentage of the wool that came from Maryland was tied, do you know?

A. I think that about four or five of the shippers did not tie their wool. We did not have that information in time to send it out to you because many of you had shorn before they got the twine; but I will say this, that about 99½% of the Virginia wool is tied at the present time. Another thing, some of you may want to know why you don't get back returns for the wool bags. In most instances we find that those wool bags are second hand to start with. We cannot pack wool so heavily in an old bag unless it is strong. If you put 200 pounds of wool in an old bag you'll find it will not always hold the wool so well. It bursts and you lose more than the price of the bag. Some of the shippers wanted us to pay for wool bags, but we couldn't do that because many of them were broken when they were received. Some wool came from some of you in fertilizer bags. These are not as good as the regular bags.

(No further questions being asked the President proceeded as follows)

THE PRESIDENT: (Senator Wolfe) I want to thank our Secretary for the most excellent address he gave us this morning, although I did not hear all of it. In his report he suggested the appointment of an auditing committee. The amount of money that he handled was so great he thinks there should be an audit of his accounts. If you gentlemen think well of that suggestion I will be glad to appoint an auditing committee, but I think we are satisfied with his accounts. To save time, we will take a chance on the accuracy of his accounts, unless you desire otherwise.

THE SECRETARY: (Mr. Clark) In view of this, I would suggest the appointment of a nominating committee to appoint my successor. I may want to leave the state in a short time. (Laughter) .

THE PRESIDENT: We'll take a chance on that, too, Mr. Secretary. Next in order, we will hear from Mr. Palmer, who will discuss with us the problems of the Ohio Wool Growers' Association. (Applause)

PROBLEMS OF SHEEP BREEDING AND WOOL MARKETING

By L. B. PALMER, President

Ohio Wool Growers' Association, Pataskala, Ohio

Mr. Chairman and Neighbor Wool Growers:

Coming to you folks today is just as much of a treat to me as it is for one neighbor to visit another neighbor's sheep flock. Sometimes, as you all know, it isn't so interesting or pleasant to discuss the problems which we have in common. It depends somewhat on the circumstances about their mutual interests.

For example, if it happens to be the morning after the dogs have been out the night before and raising havoc with your neighbor's flock, and you are called in as appraiser to testify to the amount of damage they have done, that occasion of course would not be very pleasant. But if it happens to be at that time of the year when you have discovered that you have an excellent flock and a good return from your wool and your neighbor is equally fortunate, you find that a very pleasant occasion. You would naturally enjoy a good visit together.

The subject which Mr. Clark has asked me to talk about, "Problems of Sheep Breeding and Wool Marketing" gives me a broad latitude. Always in thinking and talking over our sheepmen's problems I realize the fact that we are not in the same class with many of the tobacco, vegetable and fruit growers who are producing an exportable surplus that we hear so much about. On the contrary, we are only producing about one half of the wool needed in the home consumption of wool. In mutton and lamb production we are not producing nearly as much as is needed. That however, is generally aside from the question, except for the fact that it holds out for the sheepman an extended market. One of our biggest problems, one that we have followed for a good while, and that has been mentioned here this morning, is that we need improved methods; improved methods of breeding, of transportation, of feeding. We have been working on these problems in our various states—in Ohio and elsewhere—for a long time.

Ohio has more pure bred flocks than any other state in the United States because it is a state that is well adapted to that class of live stock industry. It is a place where breeders come from other states to select their stud flocks. Sheepmen are becoming more interested in the selection of pure bred rams now that they are interested in economical production. Economical methods of marketing offer more to the sheepmen than they do with any other particular class of live stock, since we are in the wool marketing game.

The report of your Eastern States Wool Pool was very interesting to me, this morning. Wool stands alone in many respects. It is the only product raised on the farm that cannot be changed by any mixing or merchandising process after it leaves the farmer's hands until it reaches the hands of the manufacturer. The general characteristics of the fibre of the fleece depend exactly and entirely on the general type of animal that we are raising.

Our breeding and growing operations as practiced with our flock determine the final analysis, the strength and other conditions and characteristics of the fibre. In other words there is nothing that the wool producer can do after the wool has been allowed to leave the farm, or even to leave the sheep, that can change the length and strength of the fibre. We

determine exactly the class and quality of the cloth or other product which can be made with that wool. With other commodities we can change the quality or character of the product. Our milk, or cream, or grain can be changed. We can mix our milk, and we can mix our grain by running it through our cleaners or change its grade by mixing other grain with it to produce a certain grade, but we cannot do that with wool. That is why we should study our breeding and feeding practices and use purebred rams and better ewes. At least we have found it so in Ohio and I feel certain that you sheepmen in this state will find it the same way. In these states which are producing wool we find that uniformly good breeding and management help sell the product.

I have had the privilege during the last two years of visiting about 35 of the large wool manufacturers and getting some first hand information as to what they say. It is usually something like this: "What is going to happen if the sheepmen of the United States do not take better care of their wool? In fact, we are using almost entirely, foreign wool, which is packed in bales that are uniform in pack and quality."

That is one of the problems we must solve here in the United States. We are compelled to do it to meet the competition of this foreign wool. Our co-operative wool marketing will do more to bring about that end than any other one agency.

I want to refer again to the splendid report you had from Mr. Clark about the encouragement of ram sales. They are a wonderful thing. I think we should go back to these problems concerning wool and discuss them carefully. The problems of quality and economical production are the reasons for having our wool growing demonstrations, which we have found so helpful in working out solutions for the various troubles of our wool growers. We have had wool grading demonstrations on the different farms, in localities where considerable wool is grown, conducting them with the assistance of our county agents and our representatives in the wool pool. In checking up the results attained by the use of rams having different types of fleeces we find that these demonstrations bring home to the farmer very clearly the advantage of careful selection of his flocks.

Some very interesting results have been secured by the farmers in the different sections when they have followed the different analyses and recommendations. Professor Carmichael here, was with us in Ohio when we were working hard to impress upon the farmers the need of this better care and feeding. He knows how difficult it was to interest them in the results obtained. However, by correlating the results and comparing them with those attained previously they have found that it does pay to use good rams, manage properly and market economically.

When the results were studied they saw the difference. We were able to show them that we were doing for our product just the same things that industry has been doing for its products all along. It has rewarded labor on the basis of production combined with merit of performance. Our fairs and expositions have told us a wonderful story of success in establishing improved types of sheep.

This points to the possibility of approaching a standard of excellence. They have already shown us what these standards are. Our colleges and universities have been teaching the principles of breed and breeding of our sheep. It is just as important that there should be standards for us in our production of lambs and mutton and meat production generally, as there should be and is with the sale of our wool. When we get to correlating all these things I think we are going to make great progress.

When in Tennessee recently I was very much interested in talking with the people who are selling their spring lambs on a graded basis through a co-operative marketing association. They said they were producing better grades of lambs and that buyers and consumers were buying their product faster and willing to pay extra prices when they could get quality and quantity commensurate with the amount paid.

The use of such methods developed a better market. The result was to encourage the Tennessee growers in the use of better sires and better methods of feeding and care. I think there is still some work to be done along these lines. State wide sheepmen's organizations such as you have here, are forming and growing in other states. All of these assist in furthering these things. I am constructively criticising our

organizations when I say they have overlooked many features of an educational nature. This is one thing I hope to see come about in the near future.

At the time of the International I talked with a number of representatives of these different organizations in Chicago. I found they had formerly felt quite sufficient unto themselves but that they are recognizing the need of co-operation, now. The leaders in industry also recognize this fact. They claim we need a closer affiliation and collection of our efforts into a national body. In other words, we do not seem to have gone far enough, they think. I agree with them. We, as an organization of sheepmen, will not be satisfied until we develop along broader lines, with one representative from each sheep raising state to sit on this national organization council from each of these smaller groups. We are then going to be able to link up our groups and work together as we should.

Do not anticipate too much. We will never be able to get an exact, unified program and a hard and fast rule for all the states for the reason that each section or state has conditions justifying slight variations and modifications. But we can co-operate better.

We have a great variety of conditions, from our range states with their vast herds, to the Eastern sections with the small flocks here.

Our attention must soon be directed toward protection, and tariff reduction. As soon as that has been accomplished we can make arrangements to increase our production.

It is becoming more and more necessary to protect any product like ours, which is, essentially, largely an imported product, from the importation from countries where producing conditions are not as expensive as they are in this section of the world. That is another reason, why we will be needing a well developed strong organization.

If we are to develop in this co-operative wool marketing association work we should do as the other livestock men do. We should have out terminal sales agencies located at the different markets. All should be linked together.

We are never going to get as far in our wool marketing as we should, until the different pools correlate their efforts and establish on our main market, probably in Boston or Phila-

delphia, a wool sales agency owned and controlled by the differen pooling agencies. I have talked of this matter with men of the different sections and the various districts and I think such an agency offers outstanding advantages. I am not saying that we should eliminate the state pools. Far from it. Such an agency would merely act as sale agent for our pools. We will still need our co-operative organizations and agencies in different states and we will still need to be organized, we will need it badly. in fact.

In Boston, on one street alone, there are 325 wool commission sales agencies. That is an expensive overhead. We could have our own co-operative wool sales agency, wherein samples of these wools collected and graded in our respective warehouses could be exhibited and offered for sale. Such an agency would be easier to operate than those who sell some perishable products, such as live stock and grain, because wool is a product of absolute farm production.

To produce a good crop of wool of a type and class the trade demands, the ewes must be fed right and carefully managed. The wool must be sold off, not as we want to sell it, but as the trade demands it. It is a year-round product. The only reason there has ever been a surplus on the market at any one time has been due to the fact that we all demanded the money for our wool at one time.

We can study our market and see to it that the wools from any one section do not come in active competition with wools from other sections. In that way we will not be competing with wool from different sections and the price will be better.

We must also have co-operation so that the buyers of wool cannot go to one pool and say "we can buy wool at such and such a price in such and such a state." Along with our other abilities, we sheepmen should have latent bargaining abilities.

We do not have enough consignors in our pool to realize the reason for these things. We only have about 10,280 members in our state. We have been going eight years. We have also pooled wool from Michigan, Indiana and other states and yet we realize our volume is not sufficient to control a very large place in the market.

It was my pleasure recently to attend the Annual Meeting of the National Wool Growers' Association, which has merely

been a promotional organization. I talked with Mr. Marshall and the President, Mr. Hagenbarth, and they said they did not feel they had done the things their farmers expected of them if they did not establish a co-operative marketing organization. You have started well on the road to success for the effort which you have so well started here.

These are some of the problems that have confronted us. There are many other details regarding this whole marketing work that I might dwell on but time prevents.

In conclusion I want to say that if we will continue our co-operation in production on broad lines and can develop a closer contact with the manufacturers, who are users of the products we have, find and set out the types of wool that are in demand, we will succeed.

I will say frankly that we will have to do as a manufacturer suggested to me about three weeks ago. He is the president and manager of one of the largest manufacturing concerns in the East. He visited our warehouse in Columbus and he is a man who, two years ago, laughed at the co-operatives. He made the statement to me that he could not buy native wool any more but had to depend upon foreign wools. I told him of our problems and the attempts we were making to improve the situation. He said, "The report comes to us that the co-operative is just an organization for the purpose of boosting wool prices." When we told him our method of grading, and the method by which we were making returns to the farmer on the basis of the grade of wool he produced, he was very much astonished that we could remit to the farmer on the basis of 36 different grades through our growers' pool. He became interested and as a result of that conference he visited our place about three weeks ago and said, "Well, if the sheepmen in the United States are going to begin working at that type of production, that, and that alone, will determine the use of native wool in our plant." I have been through his plant and in one big room 150 men are at work sorting out fleeces. It was costing them from 1½ cents to 2 cents a pound to grade wools coming from Ohio. There were other sorting their foreign wools. It was only costing them about ¼ cent a pound to sort that wool, because it needed practically no sorting. The Australian Growers were only sending into the United

States markets the merchantable part of Grade A, Scoured fleece. It is up to us to change our practices if we want to keep our market.

I want you to carry this message back to the farmer. I want you to say that we are always glad to co-operate in every way possible with the farmer or you sheepmen in this section or any other section. Next week we are going to New Hampshire and meet with the growers of the New England Sheep Growers' Association. They have developed along the same lines. We have a big program before us. An association meeting, I feel, in order to be of the biggest benefit should be entirely informal and if there is any question along the lines of this work I shall be glad to hear it, otherwise I will conclude. (Applause).

DISCUSSION OF ADDRESS

Q. I would like to ask what makes the different grades and how they are made up? Now for instance I understand that when there is a certain amount of blood that determines the grade. Another thing, is it altogether in the breed? I have four breeds in my flock.

A. Wool terms are a little confusing. We call wool ½ blood, ¼ blood, ⅜ blood, etc., but these grades are not very closely connected with the blood in your flock. In grading we consider the factors of length, fibre strength and fibre structure. Delaine is the finest quality. It is graded according to this quality and the length in inches. The stronger the wool fibres the better class of wool within the grade. Half blood is usually a shorter wool and has a coarse grained fibre and does not have the same strength as fine wool. The next grade would be still coarser in fibre, with practically the same length. That grade is called ⅜ blood wool. Wool that was still coarser would be ¼ blood wool. All these grades may occur on the same sheep. For insance in a purebred ewe you may find Delaine fibres, ½ blood fibres and ⅜ fibres. In grading we have the combing wool which should be 2½ inches or longer in length, The clothing wool is under this length. These differences in length cannot be corrected altogether by breeding any particular breed.

Q. What would help to make the wool uniform in grade if it cannot be done by careful breeding?

A. I do not mean exactly that it is not breeding. You cannot determine it by the breeding. There is a particular type of wool on the rump, another on the head, another on the belly, and so on. For instance, all Shropshire wool is not ⅜ blood wool, but a good Shropshire fleece is called a "high ⅜."

Q. Does feeding have anything to do with it?

A. Feeding has this to do with it—it influences strength and uniform growth of the fleece. The first thing is the nourishment of the ewe and then the nourishment of its offspring. This is what happens in the nourishment of a sheep—first the sheep herself is nourished, then the lamb and what is left goes into the production of wool. If a sheep is sick or if you have not nourished her properly it will show up in the strength and quality of the fibre. If you have given them poor care and bad feeding it will show up. During a period of undernourishment a weak place will be produced in the fibre where that wool will break. This will cause the fleece to go into clothing wool thus lowering your grade. It takes both breeding and feeding,—neither one, will bring best results without the other.

Q. What is correct feeding? What kind of feed would have to be used to make better wool?

A. That depends some on the kind of sheep you have. The wool types might, of course, be different from mutton sheep but I would say in general that a well balanced ration will give best results. For instance, clover hay is better than timothy hay, and a combination of corn, oats, and bran depending upon the period of gestation, would be better than a straight corn diet. If you are feeding for wool only it might be just as well to use straight corn diet. I don't pose as an expert on feeding but I think Mr. Carmichael could give you some information on that subject.

Q. Does that mean that you would have to have particularly good feed? In other words, an especially fine hay?

A. I wish that I knew all that we should know about that matter of hay, but I don't. Soybeans are also a good feed. I don't think, if you get them in the proper condition that you could find a better feed. When they are over-ripe or poorly cured and stored, they may become unsuitable for sheep

feeding. In some cases they may have caused scouring and unthriftiness.

In that case either clover or hay would be preferable to soybeans.

Q. If soybeans are kept properly, do you know anything against them? I have had some trouble lately. Last winter I fed my ewes heavily on alfalfa hay which I have always thought was about the best. When my early lambs came I found that about one in every ten of the ewes had no milk. I had just about one-half a crop of lambs. I want to know if there was anything I could have done to change that condition. Those ewes were absolutely dry. They had no milk at all. I tried to feed a number of the lambs on cow's milk and I failed almost completely. I saved two lambs out of about 25.

A. Soybean hay should produce milk. I can't understand that.

Q. I am wondering what caused that condition and I want to know if there is any way in which I can prevent a recurrence of the trouble another year.

A. Were they old or young?

Q. We had young ewes. Most of them were in their prime.

A. I think that probably Mr. Clark can tell you more about that than I can.

Q. I think he could; he examined the flock and he knows more about sheep than I do, I'll admit that. Last year was my first experience of that kind.

Q. Is there more than one grade of wool on any single sheep?

A. Yes. We have graded fleeces and found more than one grade of wool on a sheep. There is an area over the hips and on the withers where the wool is usually low in grade. Over the head there is another grade of wool, and so on. That is why you must be careful to get uniformly fleeced sheep. Get sheep that will breed well and will produce wool as uniformly as possible on the entire body. That is another reason why you should never let wool go from your farm without first sorting it. If you don't sort it, it goes into the mills to be sorted. If they do not find it up to grade it hurts your reputation. You will understand why it hurts your reputation if you will go into one of the mills and see the labor necessary to

sort ungraded consignments. Be very careful in clipping that wool off the breech, leg and belly of the sheep. If that wool is shorter or poorer, keep it by itself. You must remember there is more than one grade of wool on every sheep. Characteristics of uniform fleecing can be transmitted by rams or ewes to the offspring. One of our growers raised a question on the grading of his fleece which only had 50% Delaine wool. He came to us and asked for our suggestions and then he went back to his place and he followed our advice. This year we checked up on his fleece and he had 98% Delaine wool, which is, I admit a fairly good record. In the main you will find one grade predominating but there will be other grades. As each grade is clipped it should be thrown into some receptacle containing its respective grade.

Q. What constitutes a gray fleece?

A. A gray fleece is one that contains dark fibres. You will find gray fibres more often in the rams. Gray wool will not take a dye, or any kind of coloring material. Its appearance makes a lot of extra work in the factories. They are sometimes forced to take a whole spool off and rewind it, all of which costs money. Gray fibres will show up in the thread if they are not taken out. Their occurrence may be slight or they may be a very large proportion of the fleece.

In that event the value of a fleece is reduced because it must be used in a cloth that requires no color. These are the main reasons why a dark or black wool is very objectionable.

Q. Does the clipping have anything to do with the grade?

A. Sometimes there is a difference in the grade due to the clipping. A good clipper ordinarily follows one cut with another and makes no second cuts. With a good pair of shears he can produce a fine fleece, clipping by hand, if the shearer is experienced. With a good pair of hand shears it is possible to follow right around the form of the sheep. A good shearer will not use the full length but will use only the small cutting edge on the end. Everything depends on the application of it. That is true of the machine also. A good fleece can soon be spoiled by too rapid shearing or by cutting of the fibres a second time.

Q. Would you advise taking off the wool around the head, belly, legs and withers and putting each kind by itself and tying it up, separately?

A. I would, if everyone would do it. But you can't get them to do it, for love nor money, nor love of money. (Laughter). They should be tied in separate bundles, these parts of the fleece from different parts of the body, because the manufacturer expects us to do it. We tried it one year in Ohio. Some of the members did, and some did not do it. Some tackled it one way, some did it another. Some of them went so far as to tie up practically every bit of their fleeces from each sheep and others went to the other extreme. It would certainly be advisable and profitable, if all would do it.

Another thing, some growers try to increase the weights of their fleeces. I have seen many fleeces which were adulterated with plenty of foreign matter. I don't know whether you have had this experience in Maryland but we have had some fleeces come back to us in Ohio, carrying all kinds of things. We had quite a nice little collection which one manufacturer sent us. He said, "you fellows may be trying to educate your growers but I certainly wish you would tell them not to send us stuff like this." The collection consisted of an old overshoe, several pieces of stone, and a dozen other things they tried to put in.

As I see it the best thing to do is to build our product up to such a high standard of excellence that we can do as American industry has in other lines, compete with the whole world. We should have enough grades to take in every kind of wool. That would be a great help to our business, because we would not get that excessive shrinkage which has been complained of, in the better grades of wool.

THE PRESIDENT: (Sen. Wolfe) We have another gentleman who is going to make a little talk. But first I am going to appoint a nominating committee and ask them to meet in one of the anterooms to prepare their report to be given at the close of this session to enable us to elect our officers for the coming year. I am appointing Mr. Carmichael, Mr. Muncaster, and Mr. Hutton on that committee; we will now hear from Mr. Harvey, who will tell us about lamb improvement.

LAMB IMPROVEMENT

By W. R. HARVEY,

Corbett, Maryland.

In charge Sheep Department, Timonium State Fair.

Before I start in on the few remarks that I have jotted down on my paper I want to say, certainly, that this gathering has meant a lot to me and I know to all of us. I am interested in the problems of sheep development within our state borders. I know that our officers cannot help but feel gratified at such a large attendance.

The subject of lamb improvement is of vital importance to all sheep growers. There are entirely too many lambs now on Maryland farms that are a detriment, rather than a profitable investment, to their owners, lambs that will not only feed at a loss, but that will shear just about one half of the wool that they should.

To me there seems to be three very essential things necessary in the profitable production of a really good lamb, viz: the breeding of the lamb, proper feed and proper handling. I am sure that there is no class of live stock on which the use of a real good pure bred sire will leave as great an improvement on the offspring as will the use of a good ram on a flock of ewes. The average farmer when he wishes to start a small flock of sheep, either goes out to the stock yards or buys his first ewes of some neighboring farmer who probably became disgusted with them for some reason or other. When such cases are traced to their source one will find that the cause of dissatisfaction usually is the fault of the farmer, rather than with the sheep themselves.

Right here I would like to say, although it may be somewhat foreign to my subject, that we have too many men who go into sheep raising with the idea that they can be produced and grown out at a big profit and that there is no work at all attached to the venture. Men who have been in the dairy business, perhaps, and not being able to keep necessary help have decided to sell the cows and try sheep. We have had several neighbors try this out with the results that their sheep were running all over the neighborhood for the first few months that they had them. No attention was paid to them at lamb-

ing time and they were sent back to the yards in a dirty, emaciated condition, and at quite a loss financially to the farmer. There are many little things that must be looked after at the right time if one is to be successful with his ewe flock.

But assuming that we start with a fairly good ewe flock, the first thing to do is to buy a good purebred ram. For Maryland, I would suggest one of the down or medium wool breeds, as we call them. The Oxfords are the largest of these and are a splendid sheep. The Hampshires are more commonly grown and mature quickly and shear well. The ewes make the very best of mothers.

The Shropshires are perhaps the most popular breed of them all. They have many good qualities, foremost among them are, that they mature earlier than those above mentioned, shear well and are easy to fence against, which is quite an asset.

The Southdowns are used more extensively in Kentucky and Tennessee, where some of our best early lambs come from. They are to sheep what Berkshires are to hogs and the Aberdeen-Angus to cattle.

Dorsets have also been tried in a smaller way by some here and have many good features to recommend them. They have lambs twice a year, in many cases.

It is an advantage to have the lambs dropped all as nearly at one time as is possible, this can best be brought about by having the ewes in good condition, running on stubble fields or second crop meadows and in good flesh as the breeding season approaches. Turn the ram in with them about the first of September. By so doing the lambs will begin to arrive about the first week in February, allowing from 90 to 120 days to get the lambs on the market before the extreme heat of summer and before there can be much damage from worms.

The ewe lambs that we have selected to carry over to increase our flocks are old enough and strong enough to combat with with their summer enemies very successfully.

It may seem that I am going a long way around to get at the main subject of lamb improvement, but I am sure that there is nothing so important in the development of a lamb as the way he is brought into the world, properly bred and

at a time when conditions seem most favorable for his quick development.

When the lambs begin to arrive, the caretaker should be always on the job. In this connection I would be selfish indeed if I did not give my son, Will, whom the most of you know, a little credit and honorable mention. It is he, who for the past few years carried the lantern at all hours of the night on our farm looking after the little fellows when they make their appearance, seeing that they get their first fill and putting them in a little pen to themselves.

In a day or two they will usually look out for themselves pretty well and at about ten days or two weeks old they will begin to pick over clover hay. Next they will eat shelled corn which we have always kept before them, providing a creep for them to run through. To this shelled corn we have added some oil meal at a rate to make it one-tenth of their grain ration. This we have found will bring them along very rapidly, and make them ready for market, weighing 45 to 50 pounds at 60 days old and 75 to 90 pounds at 100 days old.

For ewe lambs that we intend to keep in the flock we reduce the corn ration and add oats instead, still using the oil meal. At about two weeks of age, whether we intend to keep them or market them, all the lambs are docked and the ram lambs castrated at the same operation. For docking, we use a sharp chisel, cutting from the under side of the tail. For castrating we use a sharp knife to make the opening and pull the testicles right out.

These thing are very important, the wether lambs feed much better than the ram lambs. The docked lambs keep themselves much cleaner, have a much squarer appearance and carry legs that look much heavier.

I feel that a great many make a mistake by carrying their sale lambs too long. The early market is usually the best market. By selling them early they get off the ewes, allowing them time to build up good before breeding time rolls around again. I am sure that there are no profitable gains made by lambs after they have the run of the pastures with their mothers. They run off the baby flesh put on while they are kept up in the lots and sheds with the mothers, eating shelled corn and oil meal.

Without any trace of egotism, and yet with considerable pride, I wish to refer to the show of sheep held at Timonium last fall, which undoubtedly gave one a splendid opportunity to look over some of the very best specimens of the different breeds on display. Any man who saw them should have wanted to go home and try just a little harder to grow better lambs and take better care of them.

We had Hampshires, Shropshires, Southdowns, and Dorsets in our classes. Every sheep there was a good sheep. They came from five different states and Canada.

As an educational feature, I think a show of this character is outstanding. The sheep are there and the breeders are there to answer any questions put to them by those interested. I hope that every member of this association will try to get all he can out of this show. I would like them to set aside one day to attend the show in a body. I would suggest Tuesday, the day the judging starts. Watch the work of the judge, ask him questions, study his subjects, make the acquaintance of these breeders. Make them feel we are really pleased as sheep growers in Maryland to have them here with us, and that they will soon be selling us sheep such as they have on display to improve our flocks. I am hoping for some of their strongest competition to come from Maryland flocks.

Improved stock of any kind is without question a great satisfaction to the owner and I believe it is a duty that we fathers owe to our sons to try to have the best bred stock that we can in order to make them more interested in their work, handling the stock on the farm. I don't think anything is more of an incentive to hard, careful, work with stock than to have some sheep good enough for the boy to fit and show at one of the fairs. Nothing can create a greater interest in the boy's mind and make him feel that each crop of lambs must be better, and be given better care.

Let's have the ewes in our breeding flocks as good as we can find when we start the flock. We should buy a better ram than we think we can afford at the time. Arrange the breeding dates so that the lambs will all come at about one time. Be right on the job when they begin to arrive, provide comfortable quarters for them and see that they have plenty of clover or alfalfa hay. Later, provide shelled corn and other

feeds in their creep, at the proper time castrate and dock, and I think that by doing these things at the right time we will bring about an improvement in our lambs that will be gratifying.

THE SECRETARY: Tell us about the sheep classification for 1927 at Timonium?

MR. HARVEY: We are going to have another sheep show at Timonium this year. Last year was our first year under the new management of the fair and we had a splendid exhibit considering it was the initial attempt. Most of you saw it. The quality was just as good as it could be. Many of the entries went to the Sesquicentennial in Philadelphia. I feel reasonably sure that this year we will have nearly all the exhibitors we had last year and probably some that didn't bring anything last year. I think we will be able, also, to pay them more money. We plan to raise our standards. That can be done without any trouble.

I am also thinking of adding more breeds to our exhibits. Last year we had Shropshires, Hampshires, Dorsets and Southdowns. The Ohio exhibitors took most of the premium money last year but the only reason was they had better sheep. I am going to ask for more money for the Shropshires and Hampshires. I wish that this association, as well as the swine growers were in a position to give support in some way to the Club Work. Perhaps we need a class for the Maryland exhibitors alone. We might be able to arouse more local interest, with such a class. Under the present arrangement it is open to all. We need something for the Maryland boys.

I am a great believer in pig club work and lamb club work and I think we should give all of our support that is possible to the boys' and girls' clubs. Nobody is more favorable to that than I am. I would like very much to match, dollar for dollar, all that the association will put up in the shape of prizes, if your president will appoint a committee of this association to go over the classification rules and draw up a method of procedure in regard to these fairs, under which exhibits could be carried on.

This would be most gratifying to me I assure you, and I will promise you that I will meet anything that you will put up. I will put up some money, anyway.

If we had $100, in addition to the regular classification, I believe it would be quite a help. But anyway, whatever we do, I hope that our association members will take advantage of that exhibit and come right out there to our tent and bring your dinner baskets. We have a fine large tent out there and you can come out and just make it your headquarters, make yourselves altogether at home.

As a young man I grew up in central Illinois where they had these events quite frequently. What little I know of the standards of sheep displaying, etc., I learned from those fairs, where the standards for exhibitors are very high. We need some of those higher standards here.

Q. Would it be best, or would it be wise, do you think to recommend a wether class?

A. I would O. K. anything whatever you think you can do. If you will get behind it and push it to the best of your ability it must be good and come out splendidly. I was talking with Professor Carmichael about it this morning; we will have no exhibitors at all in a few years unless this sheep growers' association in the State of Maryland takes up the matter and works for the advancement of the expositions.

It is up to this association of growers and breeders whether we end up with a success or a failure. We must take the initiative in this respect unless we want the exposition to become more and more of a failure each year until it finally dies. I think the best thing for us to do about that proposition is for us to begin right here at this meeting. We who have come here this morning are comparatively few but we have a very successful meeting. The number here is no evidence whatever of the wonderful results which can be brought about by the existence of such an organization as ours.

We should encourage the boys and girls and get them to keep on with their good work but the men should also come in for a little prodding once in a while. We should get busy and show these rivals of ours what we can produce. Show them that we can produce better sheep than they can and they will welcome us as worthy competitors and co-operate with us.

The boys deserve our support and co-operation because they will be our successors. We want to make them able to make

good. There is much talk of keeping the boys on the farm and I think this is the best way we can accomplish that. The boy wants to mix in with us and learn what he can and he also wants to produce something that he can show at the fairs. That shouldn't be an excuse for his father to be a slacker. He should show in his classification also.

I want to say another thing, too, which I think is important. Last year I had a man call me up, who had been exhibiting for several years, and he told me that he had—at the last minute—decided not to come. I asked him the reason. He said, "I have sent you the money for your pen rent, but that is all right. Just keep it. I'm not bringing up anything to exhibit." But I insisted on his coming up and putting his exhibit on display. He came up and after he saw the sheep hunted me up. I don't know when I've had such a combing over. He said, "I don't consider you're a friend of mine, for insisting that I come up and furnish an exhibit, when you knew what was here. You know that I can't get any of that money up here. Why, this whole fair is being staged for the benefit of the State of Ohio." I said to him, "Well before you criticise me too severely, just stop and consider. If these exhibitors can come here and get this money, and it is awarded to them on merit, by a Judge, on standard points, isn't it fair that they should have it?" And then he said, "Yes, possibly so. But your Judge is from Ohio." (Laughter.)

I said to him, "Well here now think this thing over. Perhaps these men will prove themselves deserving the award when you see their methods of handling and see how differently they have gone at it than you went after this thing."

He saw the point and he studied their methods, etc. The result of the whole thing was he bought one of the best rams for sale on the grounds. In all probability he will show this year and carry off some of the first prize money. I expect that the young man, his son, will make one of the best sheep men in Maryland. There are some very valuable improvements that can be made and they can't be overestimated. I would be glad to see this association do something about this even if it is only to give $50 and I will be glad to meet whatever you put up, 50-50. Let's see if we can't put some life into this thing in that way.

Q. Do you regard it as necessary or advisable to keep the rams and ewes separated previous to the breeding season?

A. I would keep the rams away from the ewes through July and August, anyway. Then there is no danger of the ewes coming in before you want them to, unless they are Dorsets, which have that trouble some. But by all means, whatever you do, keep the rams away when the lambs commence to come, because the rams will often bother the little fellows, and knock them about more or less. Therefore, you can't keep them together at that time. I would keep them apart during July and August, altogether. Then, after the cooler days commence, they will all breed at about one time. When the lambs come they will be more uniform in age. You will have time to attend to your docking and castrating, because it can be done largely at one time. They will grow and fatten more uniformly than if you let the rams out with the rest of the flock and have lambs of all ages.

Q. When the lambs are born do you put them in a little pen by themselves?

A. Yes. That was my boy's idea. Make a small pen four feet square and place ewe and lambs in it. If they happen to have only one lamb it might not be necessary to pen them. It is better to pen them, so that if they have twin lambs the first little fellow will not get up and wander off while the ewe is giving birth to the second one. It is better to keep them with the mother until they have had their first fill or perhaps a day or two.

If there is only one of them he will probably get up shortly and start hunting his food. There is some danger that the ewe may tread on or otherwise injure the first lamb in the process of giving birth to the second lamb. To overcome that difficulty my son has built some small stanchions for the ewes and about the time they are coming in, he puts the ewes in them and ties them. Then we don't have any lambs which get hurt in that way. Since the time he started that practice we have never had any trouble on account of losing lambs.

THE SECRETARY: I have one or two announcements to make. One is in regard to the banquet tickets for tomorrow night. Mr. Stewart advised me yesterday that the banquet tickets

are going very fast and he advises any of you who plan to attend the banquet tomorrow night, to get them promptly.

I would also like to mention proposals for our ram sales. I have made tentative plans for a ram sale at College Park on Farmers' Day, a second sale to be held at some time soon thereafter on the Eastern Shore, and a third sale to be held at Hagerstown.

These proposals are subject to your approval. If you have any changes to make or any suggestions I would like to have them before we go ahead and formulate definite plans. Nothing has been definitely arranged. Centerville seems to be the logical place for the sale on the Eastern Shore. I would also like to mention the fact that I have received 23 memberships for the year 1927. I will be glad to receive applications from any of the remainder of you who want to pay your dues now. During the year we will also stage some demonstrations of docking, castrating, shearing, and drenching for stomach worms. Information will come to you from time to time during the year telling about these things. I wish when you get this publicity you would pass it on to your neighbors after you have made use of it yourselves. When any of these events occur in your locality try and attend them.

We would like to have your friends attend each local or county demonstration along with you because they will become interested and it will help the cause tremendously.

Mr. Palmer has called to my attention the fact that a bill is to be introduced, or has been introduced in Congress by Representative Morgan and Senator Eady which provides for the disposal of a fund of $250,000 to go for the advancement of the sheep raising industry. Mr. Palmer, I believe I had better let you tell them about this.

MR. PALMER: Briefly, it is this. During the war period there was an excess profit taken from the wool growers over and above a certain per cent. which was allowed them. That has all been returned to the dealers and producers who kept a record and now there is a fund of $250,000 which they have been unable to return to the growers from whom it was taken because of a lack of proper records, etc. This bill has been introduced to turn over this $250,000 to the Department

of Agriculture, through its co-operative division for educational work for the benefit of the wool growers from whom it was originally taken. This $250,000 fund isn't so big as it might have been because it is in some process of litigation in the courts, etc.

I think it is just and right that we sheep men should get into it and see that we get our proportionate share of it. We should send out letters to our Congressmen requesting them to take action to insure our getting our portion of the benefit due us. The bill has already been introduced both in the House and the Senate.

NOTE: A committee on resolutions was appointed for the purpose of formulating a resolution and communicating with our senators and representatives in Congress, to see that our desires and interests are protected in this legislative matter.

THE SECRETARY: I have an announcement to make in connection with the lamb chop luncheon. Some one asked me if I could tell something about the "lamb fries" luncheon. I am sorry I can tell him about no such luncheon. The "piece de resistance" is to be lamb chops instead of lamb fries.

MR. WOLFE: Not Mountain Oysters?

THE SECRETARY: No. This luncheon is to be given us by the Baltimore Union Stock Yards Company. They have asked that we be together as much as possible and so I have arranged for a large bus to come and get us. I have ordered the bus to be here shortly after twelve.

THE PRESIDENT: I believe, now, we are supposed to get a report from the nominating committee.

The following Report was presented by the chairman of the Nominating Committee:

"The committee met in the committee room at the back of this hall and decided that we would recommend the same board of officers that we have had during the past year. We figure it would be folly to swap horses in the middle of the stream."

The following officers are nominated:

President, Humphrey D. Wolfe, Glenwood, Md.; Vice-President, E. L. Thomas, Frederick, Md.; Secretary-Treasurer, K. A. Clark, College Park, Md.; Executive Committee Joseph

M. Mattingly, St. Mary's County, Charles T. Cockey, Baltimore County.

It was moved and seconded that the report be accepted and that the officers be considered elected.

THE PRESIDENT: Gentlemen, you have heard the report of the nominating committee, also you have heard the motion. What do you wish to do? (Motion carried.)

I wish to thank you gentlemen for the honor conferred. I always have taken a great interest in everything pertaining to sheep raising and in fact to the farm in general. I am glad to say that I still live in the house in which I was born and hope to live there for a good many years to come.

Gentlemen, a motion to adjourn is in order.

Adjournment.

REPORT OF

Annual Meeting of

The Maryland Tobacco Growers' Association

Baltimore, January 6, 1927

The Maryland Tobacco Growers' Association's meeting, as one of the affiliated organizations with the Maryland Farm Bureau Federation on January 6th, 1927 at the Rennert Hotel, showed a very marked increase in enthusiasm and interest in the progress of the Association. It particularly showed that the farmers were learning the value of organization, and appreciated the many handicaps which an organization has to overcome before reaching the point of real accomplishment.

The meeting was promptly opened at 9:30 A. M. by Dr. W. B. Burch Chairman who made a very forcible appeal. He gave statistics that very clearly showed the necessity of organization. to compete with industry, which he brought out very clearly could only be done by organization.

The Secretary of the Association, Mr. F. Brooke Mattnews, then gave a detailed report of the operation of the Association during 1926, which showed an increase in surplus and a very creditable showing under conditions that exist relative to organization. The report also showed a 51% increase in the sale of fertilizer by the Association. Following his report, Mr. Matthews made in his usual eloquent style a very strong plea for the completion of organization as it had been clearly demonstrated that there was but one salvation for agriculture in the state of Maryland, and that was for the farmers to organize as all other industries had done.

It is needless to say that the honorable Thomas Parran, president of the Maryland Tobacco Growers' Association, made one of these speeches along his usual style that could not help but bring results, and he clearly and comprehensively put before the people the progress, the value and the necessity for the farmers to organize. When Mr. Parran speaks,

all listen. They all know he is well versed in the work to which he has given seven years of the best part of his life.

The report of the Manager Mr. George I. Gardiner, was very encouraging. He outlined plans for 1927 of the various changes of handling tobacco through the State Tobacco Warehouse, and the system of handling it through the salesroom of the Association. It was particularly interesting to all there to know that the things learned by experience were rapidly taken advantage of, and were being put into effect in a practical way to get results. He also briefly gave his reasons for believing the tobacco industry was now on a very stable basis, and that the future prospect for the tobacco farmers was most encouraging, provided the farmer himself would study the demands of his market, pack, grade and handle his tobacco in the most careful way so that the demand for Maryland tobacco would be maintained and increased throughout the land.

Mr. Gardiner was followed by Mr. George R. Stuntz, county agent from La Plata, Maryland. His topic was "The Tobacco Growers' Association as the Farmer Sees it." Mr. Stuntz brought out in the most forceful way comparisons that were very practical, and he was entirely conversant with all conditions between the tobacco farmer and the Maryland Tobacco Growers' Association. He made one of the best talks along this line it has ever been the pleasure of the farmers to hear.

Mr. H. H. Carr who always is a strong addition to any meeting of the Association was detained on account of illness and he could not be present.

The whole meeting proved most conclusively that the Maryland Tobacco Growers' Association is now a factor of no small degree in the minds and hearts of the farmers of Southern Maryland, and they showed their determination to complete its usefulness.

REPORT

OF

Fourth Annual Meeting

OF THE

Maryland Swine Growers' Association

Baltimore, Maryland, January 6, 1927

The fourth annual meeting of the Maryland Swine Growers' Association was held in Baltimore on Thursday forenoon, January 6, 1927. Though former meetings of this Association have been well attended and have been characterized by a good program and lively discussions, this fourth meeting seems to have been even better than the meetings which preceded it. Though the day was cold and rough the attendance was good. The program proved to be interesting, and the addresses were followed closely by those in attendance. The meeting was called to order by President W. R. Harvey, of Baltimore County. The report of the secretary-treasurer, B. E. Carmichael, College Park, was submitted as follows:

REPORT OF SECRETARY-TREASURER

BY B. E. CARMICHAEL

Mr. President and Members of the Association:

The past year has been one of moderate development in the affairs of the Maryland Swine Growers' Association. At the outset of 1926 there was held a successful, well-attended annual meeting of the Association, addressed by Mr. E. Z. Russell, in charge of swine investigations in the United States Department of Agriculture; Dr. I. K. Atherton, in charge of hog cholera control work in Maryland; and Professor K. A. Clark, Animal Husbandry Specialist of the University of Maryland Extension Service. The addresses delivered by these gentlemen and the discussions which followed were full of interest and carried much information of value to pro-

ducers. A printed Report of the Annual meeting has been mailed to each member of the Association. Some additional copies are available and will be sent to interested people upon request.

Market conditions throughout 1926 have been favorable to producers of market hogs. Though corn has not been cheap hog prices have maintained a sufficiently high level to provide a good profit for the careful feeder and caretaker who has good stock. Breeders of purebred hogs have experienced a better trade during the past year than for a time previously, but prices for breeding stock do not seem to have gone quite as high as might have been expected.

According to a recently released report from the United States Department of Agriculture, no greatly increased production of pigs in the spring of 1926 is indicated, and there seems good reason to believe that normal production on Maryland farms during the coming year should be encouraged.

The second volume of the Monthly News Letter has been completed, and your secretary would appreciate an expression from this group as to whether the News Letter is of enough value to the members of the Association to justify its continuation. During the year there has been a considerable reduction in the number of copies of the News Letter mailed, and it now goes chiefly to members or those who have indicated an active interest in securing it.

The 150-day 1500-pound Litter Contest for 1926 did not arouse the interest that was expected, and, although there were five entries, as compared with nine in 1925, final weights of but two litters have been received, and only one of these has succeeded in reaching the desired weight of at least 1500 pounds in 150 days. The excellent weight attained by the one litter which was successful—details of which will be presented during the progress of this session—shows something of the possibilities of this contest when entrants begin with good sized litters from good ancestry and provide them with proper rations and quarters. It is hoped that members of this Association and county agents will show a lively interest in this contest during the coming year. It would seem to be an attractive line of work for boys' pig club members as well as for adult producers.

The membership growth of this Association during 1926, though not startling, is encouraging, and it is hoped that this growth may continue at a more rapid rate during 1927. In 1924 there were 31 paid members of the Association; in 1925 there were 43; and in 1926 there were 68. There could well be a membership list of at least an average of 10 members in each county of the State.

FINANCIAL STATEMENT

RECEIPTS

Cash balance, January, 1926	$19.00
Membership dues for 1926	68.00
Membership dues for 1927	13.00
Total receipts	$100.00

EXPENSES

Postage, envelopes, cards, and printing	$35.74
Dues to the Maryland Agricultural Society—The Maryland Farm Bureau Federation	20.00
Total expenses	$55.74
Balance, cash on hand	$44.26

PRESIDENT'S ADDRESS

By W. R. HARVEY, Corbett, Maryland.

Gentlemen of the Maryland Swine Growers' Association:

I am very glad indeed to see so many here and I feel that were it not for the severity of the weather this morning there would be quite a good many more here, and I believe that everyone will go away benefited by hearing what the different speakers have to say on the subjects assigned to them.

This Association, largely through the efforts of our worthy secretary, continues to grow, and I hope that the growth for the year 1927 will be fully up to that of 1926, and that every one present will not forget to ask for a membership card before leaving the room.

The object of this Association is to serve in the best possible manner the swine interests of the state and it is the duty of every member to take an active part in the workings of the Association.

Just to come here and listen to our program for this one day isn't enough, we should make our existence felt every day

of the year. We should do everything possible to encourage boys' and girls' pig club work, especially in the Maryland Litter Contest. These boys will be the hog producers of our state and the ones to carry this Association along in time to come.

Were it at all possible I would like very much to see the Association give something in the way of special premiums at some of our best shows, to encourage larger and better exhibits in the pig club division, as well as in the barrow classes. It would be splendid, indeed, if we could have a Maryland exhibit, in a building set aside for Maryland swine alone exhibited by members of this Association, not necessarily of pure bred breeding hogs, but of our pig club exhibit and barrows.

We should be able to show outsiders that there is a real benefit derived by being a member of this Association.

The present outlook for the swine industry in general, I think, is good. Prices are holding up well, with an indication of going higher and the price of feed remains in the main about the same as for the past year.

There is, I think, every reason why each of us should keep the usual number of brood sows and supply them with forage of some kind and give them and the pigs the best of care at all times.

There are so many things more interesting for us to listen to on our program, that I am not going to take up any more of the time. We will now go on with the program.

Following the address of President Harvey, Dr. S. S. Buckley, for many years connected with the University of Maryland and well known to many Maryland swine growers, now and for some years past doing important work in the Bureau of Animal Industry, United States Department of Agriculture, was introduced by the President and delivered the following interesting and valuable address:

ESSENTIAL HOG-LOT EQUIPMENT IN MARYLAND

BY DR. S. S. BUCKLEY, Animal Husbandry Division, U. S. Department of Agriculture

Mr. Chairman and members of the Maryland State Swine Growers' Association:

It was with considerable pleasure that I accepted the invitation of your secretary to appear again before Maryland farmers to discuss a feature of the business of hog production which contributes so great a part to the profits of livestock farming.

For many years all over the country farmers have been urged to make their business safe by producing as far as possible what is needed for consumption on the farms, and in addition something for the market. Applying the suggestion to Maryland as a whole, with respect to hogs, would necessitate the production of over 700,000-two hundred pound hogs annually to supply the pork requirements alone of the million and a half population that Maryland now boasts. You will note therefore, that Maryland with only 300,000 hogs is required to import from those agricultural sections which produce more than their own requirements, huge quantities of pork,—an amount greater in fact than all of that now produced on her farms.

If it required expensive equipment and the importation of large quantities of feed from outside the state in order that farmers might easily engage in the pursuit of hog raising there might be some justification for delay in supplying the need of its people as far as pork, pork products and lard are concerned. The equipment necessary for hog production, however, is inexpensive and may be constructed almost completely on the farm without skilled labor and without any great expenditure for materials. After having had the opportunity of seeing hog production in various parts of the country, and after many years of observation of conditions under which hogs are produced in Maryland I am of the opinion that of all the articles of equipment necessary for hogs on the farm none is more important than the hog-tight fence. Next to proper enclosures it is necessary that there be provided quar-

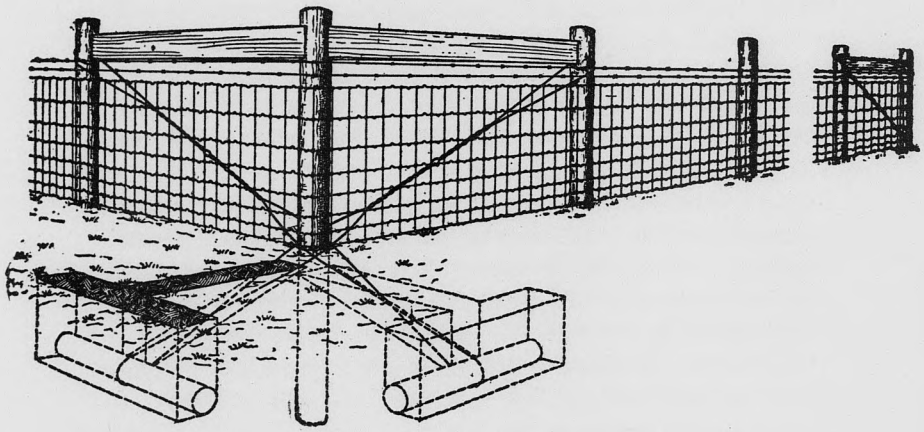
ters with dry floors and tight roofs which can be used by hogs and pigs when weather conditions are unfavorable. As a general proposition it may be stated that the hog-lot equipment desirable for hog culture represents more strikingly matters of convenience for the hog man, than they do necessities for the hog. It has been my observation that when healthy animals are well fed, exposure to temperature and climatic conditions, as found in Maryland, are readily borne and such exposure does not interfere with successful growth and development in young and growing animals.

Clean feeding floors, feeding troughs and waterers safeguard sanitary conditions and they, with dry sleeping quarters, may be said to cover the essential articles of equipment necessary in hog production.

As matters of convenience to the hog man, however, self-feeders, creeps, hay-racks, breeding crates, hurdles, loading chutes, etc., are desirable and the extent to which they should be provided is dependent upon the number of hogs which are to be housed and cared for. All reference to houses and equipment here made are in conformity with the designs exhibited as blue prints.

Tight fences and gates are a necessity for the hog lot. Woven wire of number 9 gauge throughout, with vertical stays 6 inches apart, and from 28 to 36 inches in height according to the size of the lot, is more practical than any other type of fence. Boar lots should be fenced with higher wire, 42 to 48 inches being necessary. Many fences would be perfectly satisfactory for the purpose, even though lighter fabric than No. 9 gauge is used, if the posts supporting them were properly set and corner and gate posts securely braced. Since corner and gate posts carry all the tension of the stretched fence and intermediate posts are mere supporting members the end posts must be strong and of sufficient size and quality to be durable. These in the average soil, if set at a depth of four feet, will justify the extra labor in satisfactory service. Brace posts at fence corners should be placed at a distance of not less than twice the height of the fence. A wooden brace about 4″ x 6″ notched into the corner and brace posts near the top should be set level. Bracing wire (galvanized No. 8 wire) should extend from near the top

of the second post, on each side of the brace and the corner post on a straight line through a trench to a "dead man" placed in line but at right angles to the line of fence. After the "dead man," corner, and second posts are well set and firmly tamped the wires are crossed and twisted so that these three members and the wire form a solid resisting unit, Intermediate posts should be substantial and of about the same lasting quality throughout. When fencing across low places, that is below the general fence level, longer posts must be used and these well set and preferably anchored with cross bars spiked to the post near the bottom below ground.



Fencing across gulleys and ditches requires special arrangements according to circumstances. When corner, gate and line posts are completely set and braced the fence fabric may be stretched. Well-stretched, heavy woven wire fencing should not require anchoring of the bottom strand between posts. When, however, fences are not rigid it is necessary to anchor the bottom wire at one or two points between posts in order to prevent hogs lifting the fence and passing under. Anchors may be made out of small pieces of bar iron with a hole punched slightly beyond the middle into which a piece of No. 8 wire is fastened. The wire with the short end of the iron forward is dropped into a hole made with a digging bar. It is then snapped back to engage the earth on each side.

When drawn hard and fastened to the lower strand of wire of the fence it acts as an effective anchor.

Just a word about gates and fasteners will suffice. Gates made and braced as shown in the illustration are strong and durable. The fastener or hook with long loop eye is worth noting. A very slight change in position of the gate post makes ordinary hooks unsatisfactory, the long eye, however, overcomes much of this difficulty and permits easy fastening or loosening of the hook. On the hinge end too, the cotter pin placed above the hinge eye through the hook, makes it impossible for the gate to be lifted off the hinges. This is especially important in the boar lot. The gate itself is made 12 feet wide, with a 2″ x 6″ lower rail and 2″ x 4″ top rail with 1″ x 4″ material for intermediate bars, uprights and braces securely bolted together. The style of brace also gives rigidity and durability to the gate.

Since the hog lot is useless without an effective gate its material and construction should be of the best.

Automatic waterers whether of commercial make or home made are necessary unless clean, running water passes through the hog lot. The barrel waterer is easily made but does not permit the use of lamps to offset freezing temperatures. These are provided in some of the commercial types.

The use of self-feeders has done more, probably, to bring about efficient feeding than any other one agency. The self-feeder merely continues the practice started at birth, which permits pigs to eat when they crave food, to select what appeals to them of the feeds available, to consume as much as satisfies them at the time and to vary the proportions of the protein and other feeds to suit their immediate requirements. As pigs grow to shoats, then to hogs and finally to fat hogs their feed requirements, both in amount and composition, vary. The self-feeder takes care of all of this, if the assortment of feeds is provided in separate compartments for making a complete ration.

No one type of self-feeder is best. Any style of feeder with sufficient storage capacity in the several compartments, permitting an automatic flow of the feeds to the feeding floor, without waste, answers all requirements.

It is safer to trust the hog to get what he needs from an assortment of feeds in a self-feeder day by day as he develops to market weight, than to trust the average feeder with the same feeds in producing an equal weight hog in the same period of time.

Feed troughs are varied in type. In general it may be stated that cast iron, pressed steel and sheet-iron troughs are not so durable or in general so satisfactory as wooden troughs, which may be made on the farm. Our flat bottom trough has been demonstrated to be well adapted to the purpose of feeding slop feed or grain.

Feeding floors or platforms are best constructed of concrete. The number of hogs kept will determine whether or not the expense of this construction is justified. From 8 to 10 sows and litters usually justify this piece of equipment. A shoulder two to three inches high around the edge will keep the feed from being pushed off the floor and yet be low enough to allow sweeping and washing to a satisfactory degree.

The size and style of hog house will depend upon the number of hogs kept. Aside from the purpose of providing farrowing quarters a hog house demands only that the roof be tight, the floor dry, and that there be room enough for the hogs without piling. Management, however, requires that all hog shelters be kept as free as possible of dust. Dust appears to be responsible for much of the lung disorders so common among hogs and pigs.

The farrowing house as a separate building is desirable when more than ten or twelve sows are kept for breeding. Fewer sows may be handled satisfactorily in individual houses, either of the box or "A" type.

When the necessity for a separate farrowing house arises it should be met with a decision to build a good one, but one devoid of extravagant and expensive features.

The details and special features described in Farmers' Bulletin 1487, "Practical Hog Houses" and 1490, "Hog Lot Equipment" will be pointed out directly from the blue prints. All of these are available through the Extension Service of the University or directly from the Animal Husbandry Division, Bureau of Animal Industry, United States Department of Agriculture, and include in addition to the foregoing

creeps, hay feeders, shades, dipping vats, crates, hurdles and loading chutes.

Good equipment—that is, durable equipment, which is thoroughly practical for the hog farm is an investment. Expensive equipment and that which is not practical is an extravagance that the hog business does not justify.

At the conclusion of Doctor Buckley's valuable address, many questions were asked and various points made by him were discussed in a way that indicated an active interest in questions pertaining to efficient, economical equipment for hogs on Maryland farms.

Doctor H. H. Havner, assistant director and in charge of Animal Husbandry Extension, Pennsylvania State College, Pennsylvania, was next presented by President Harvey and delivered a timely and practical address as follows:

PORK PRODUCTION IN THE EAST

By H. H. Havner,

In Charge of Animal Husbandry Extension,
Pennsylvania State College.

Members of the Swine Growers' Association:

The eastern section of the United States is located in a district which the economists choose to call the Marginal Territory in Pork Production. This being the case it seems of vital importance to analyze the pork production possibilities very carefully so that the industry carried on may be based fundamentally upon sound economics. The first question to consider, therefore, would be "In what location or under what conditions is pork production logical?" My answer to this question would be that the raising of pigs can logically fit into any agricultural section of the east where one or both of the following conditions prevail.

1. A section where corn can be matured.
2. A section where dairy by-products such as skim milk, buttermilk or whey are available.

Please bear in mind that I am not sponsoring the idea of an extensive swine industry for the east entirely out of balance with present lines of activity on the farm. What I have in

mind particularly is the use of hogs in those sections adapted to swine raising which will naturally mean an added income to those farms if equipped properly to handle hogs and manned intelligently to get the best results.

It is probably true that pork production in the east will never be carried on in the size of units characterized by corn belt farms. It would seem logical to reason, however, that there is a very definite place for pork production in the east in certain areas or sections which have previously been defined.

Figures from the 1925 Triennial Census for Maryland tell an interesting story of swine raising. The total swine population of Maryland is given as 187,656 and the number of farms as 49,000. The number of breeding sows is given as 23,672 head. Taking as a guide known figures of an adjoining state we might assume that approximately 36 per cent. of your farms kept brood sows. This would mean that 23,672 brood sows are actually owned and handled on about 17,500 farms. This is less than an average of two brood sows per farm. There would seem to be a vital breeding problem, therefore, in connection with a profitable pork industry in your state. How can the average farm owner who has one or two brood sows avail himself of the service of a high class boar for his one or two sows? This question I will try to answer in connection with the discussion of the first part of the circle of a profitable pork husbandry.

The United States Department of Agriculture has given out the results of experimental studies which based on actual percentages show that pigs sired by a high class purebred boar are 36 per cent. more efficient than pigs sired by a mediocre boar. A 36% greater efficiency means in connection with the production in every 100 pounds of pork the saving of 150 to 200 pounds of feed. Surely it is the part of wisdom and economy, therefore, to use efficient pork machines to convert home grown grains, forage crops and purchased protein feed into pork. Admitting the proven point of the great importance of an efficient pork machine, how is the average farmer, the one or two brood sow owner, to avail his farm of this high class boar? This problem has been met in Pennsylvania by the community boar association.

There is an average of only two brood sows on the Pennsylvania farms where hogs are kept. This is too small a number to make it profitable to maintain a herd boar on each farm. Cost account records show that the cost of keeping a mature hog on the farm for a year amounts to $60 or $70. Where two sows are kept even if they raise two litters a year, the service fee per litter amounts to more than $15 which is excessive for pigs being raised for market.

To reduce this necessary overhead expense, boar associations have been organized. These associations make it possible for a group of farmers in a community to purchase and keep a boar coöperatively at very little cost per member. The original cost of the boar divided among the members makes it possible for them to secure a much better sire than would be practical for any one of the individual members to own. The boars owned by the associations in the States are of very high standard, many of them are prize winners at the biggest shows in the country.

The success of these associations is indicated by the improvement in the quality of the stock in the communities and the low cost for breeding service. Probably the most successful association from a financial standpoint is the one at Shannondale, Pa., in Clarion County, which has been in operation for six years. The originial cost per member was $11. They have their third boar at the present time with nearly $100 in the association treasury. All the members have bred their sows to the association boars during this time without any cost for keep. The boars have been maintained by service fees for sows not owned by association members. Six new associations have been organized during the year making 57 active associations in 20 counties with a membership of 571 farmers.

The next part of the circle of a profitable pork industry is the vital and fundamental step of sanitation and worm prevention. Wormy pigs constitute a wasteful and usually an uneconomic method of pork production. Figures taken from the records kept by swine growers in Illinois in a review of the McLean County System of Swine Sanitation by E. T. Robbins, show that the "wormy way" pigs required 500 pounds of grain for each 100 pounds of gain while sanitation

pigs or those free from worms required just 100 pounds less grain or 400 pounds of feed for each 100 pounds of gain made.

In carrying to completion a practical system of sanitation, the four cardinal requirements given below should always be kept in mind:

1. Provide a sanitary farrowing pen bedded with clean bedding.
2. Clean the sows thoroughly.
3. Haul (don't drive) sows and pigs to pasture where no hogs have run for at least two years. Preferably this pasture should be a field which has been cultivated since last used by hogs.
4. Provide a clean pasture where pigs are to be kept until at least four months of age.

A pen is sanitary only when all litter and dirt has been removed, the floor and the walls for two feet or so from the floor have been carefully washed with scalding water and lye in the proportions of one pound of lye to 30 gallons of boiling water, and a disinfectant (liquor cresolis solution) has been applied to walls and to posts which the water did not reach. Liquor cresolis may be procured at almost any drug store. Thirty parts water should be used to 1 part of liquor cresolis. It is superior to most of the disinfectants ordinarily used. The disinfectant will probably reach some corners and surfaces which the boiling water and lye will fail to reach. This makes a pen safer for the young pigs.

The most desirable bedding to use is fresh, clean straw. No bedding of any kind should be used that has been soiled. A pen should be bedded lightly at farrowing time and for a few days following. Bedding should be kept clean by being changed often.

With the exception of her udder, a sow can usually be cleaned with a stiff brush. The udder should always be washed with a strong solution of warm soapy water. A chunk of dirt or filth the size of a pea if from a contaminated place, could easily contain sufficient worm eggs and disease germs to stunt a pig if he swallowed it. The importance of removing all dirt and dust from a sow is therefore very evident. It would be defeating the purpose to put a dusty, muddy-footed sow into a pen which has been cleaned with great care.

The easiest, safest and best way to move the sow and pigs from the farrowing pen to a clean field is to haul them. A clean hog crate on a sled will do very well for this purpose. To say the least, driving them on foot is a very dangerous practice. *Take no chances on letting the young pigs pick up contaminated soil.* They are very apt to do so if driven through the old hog lots. A little carelessness at this stage might easily mean the partial or entire failure of the whole system.

The fact that pigs are not readily susceptible to the round worm or the filth-born diseases after they are about four months of age makes it fairly safe to allow them to return to the old lots at this age. Even at four months of age trouble may be expected with at least a part of the pigs if they are allowed too much freedom around the contaminated hog lots. The safest plan is to keep them in the field until they are five months old. When they are allowed to return to the old hog lots, they should, if possible, be fed on a clean concrete feeding floor. A dry, well ventilated shed, bedded with plenty of clean, dry straw will aid greatly in keeping them healthy.

My third main point is relative to feed requirement or feed costs. It is hardly necessary for me to emphasize the importance of forage crops during the growing season. Your Experiment Station at College Park has carried out certain tests that clearly answer this question. My suggestion would be to obtain from Professor Carmichael and his associates suggestions along the line of proper forage crops for Maryland conditions.

In our forage crop demonstrations in Pennsylvania, actual figures kept by farmers show a difference in saving of 1⅓ sacks of grain in pigs grown on forage as compared to dry lot. We of course recognize that not all of this saving is due to forage alone. A part must be credited to a greater freedom from parasites of pigs produced on clean pastures.

Also highly important in connection with your feed costs is the matter of a proper protein supplement. Few real hog men do I find nowadays that are not either using tankage or fish meal to balance their home grown grains. Probably in this section you will be able to purchase fish meal at a rather cheap figure. I know that our Pennsylvania swine growers

find it expedient to use fish meal and we of course are a greater distance from the source of supply. Experimental results show tankage and fish meal to be practically equal when used in similar proportions in growing or fattening rations. Your choice, therefore, might logically be based on the cost per 100 pounds of feed.

Recent investigations show the need of further study and research on the question of mineral supply in swine feeding. The study is new. Much more is to be learned. It is possible to state at this time, however, that feed combinations should be selected which satisfy the demands of the body for mineral. It is interesting to note in this connection that most favorable results and satisfactory gains have been possible through the use of a combination protein supplement which has been reinforced by the addition of a leafy legume meal for its vitamin and mineral content. The combinations referred to is the mixture sponsored most actively by the Wisconsin Experiment Station as a result of swine feeding tests in the Badger State. The mixture consists of

Tankage..... 2 parts
Linseed Oil Meal 1 "
Alfalfa Meal.... 1 "

This mixture is either used on the basis of a 10% allowance with home grown feeds or it is self-fed according to appetite along with corn and mill feeds.

An artificial mineral combination which has been used with success in Pennsylvania where it was felt that additional calcium should be supplied consists of the following ingredients:

One part by weight of ground raw limestone
One part by weight of ground steam bone meal
One part by weight of salt
One part by weight of charcoal

If groud raw limestone cannot be secured, either well air-slaked lime or hydrated lime can be substituted. If ground steam bone meal is not available 16% acid phosphate can be substituted.

And finally I would make the point of the importance of the attitude of mind and genuine interest of the swine grower

in the business of growing hogs. If a farmer does not like hogs, and if he will not take any special pains in handling hogs, he will not make a success. There is an old adage "the eye of the feeder fatteneth his livestock." I would like to paraphrase this for the swine grower to the effect "that the attitude of mind provideth the best answer." Surely the farmer himself is the most important factor in economic pork production.

Mr. William Holloway, of Worcester County, lead the discussion of Doctor Havner's address and brought out the fact that the points mentioned by Doctor Havner are of much importance to Maryland swine growers. Mr. Holloway told of especially good results that he has secured from the use of green feed for hogs, and urged a more general adoption of the practice of pasturing hogs and hogging down corn.

Dr. I. K. Atherton, in charge of hog choleras control in Maryland, was next introduced. In an interesting way he told those present of the important work that is being done in Maryland by him and his associates, Drs. E. J. McLaughlin, W. H. Wright and O. K. Hoffman. Doctor Atherton's address follows:

HOG CHOLERA RESULTS IN MARYLAND IN 1926

By I. K. Atherton,
College Park, Maryland.

Members of the Maryland Swine Growers' Association:

I consider it a great pleasure to accept the invitation of your secretary to appear before you today. In fact, an invitation to appear before this organization is accepted in the nature of a command. The hog cholera work is continually being reviewed by the College, State, and Government officials, but the manner in which it is conducted and the results obtained are looked at in an official light. We believe it important, however, that every undertaking in which the farmers are concerned should be reviewed by the representatives of those directly interested.

There are always two sides to a question, and in the hog cholera work officials look at it from one angle, while the farmer is interested in a far different manner. In fact, the

farmers are supposed to be coöperators in the enterprise. A coöperator is nothing but a partner, and partners should always have an opportunity to review the balance sheets, so to speak. I trust, therefore, that if there is anything in my paper that is not understood or approved by anyone present, they will not hesitate to express themselves on the point at issue. It might be that there is no difference of opinion, but simply a misunderstanding over the manner in which the statement was made.

So far as the outbreaks were concerned the first nine months of the year were all that could be desired. For this period only 141 centers of infection were reported, which was 45% of a 7 year average. However, for several months there had been rumblings of storm clouds in the Corn Belt States. Even late in the year 1925, there was an increase in the number of outbreaks in that section and early in the spring in Iowa this condition took the form of an epidemic. Experience had taught those engaged in the work in Maryland that when the Central States were suffering a scourge of hog cholera that this state would sooner or later also have trouble, due to the infected pork that would enter the channel of trade. Just what happened after October first was no surprise, and for the last 3 months of the year, 445 outbreaks were rolled up. However, in spite of the large number of new centers of infection which were started, the disease at no time took the form of an epidemic, and the outbreaks for the year were approximately only 11% over a 7 year average, or a total of 586 cases.

Of these 586 outbreaks 540, or 92% were primary or new cases of the disease. Thus only 8% of the outbreaks reported during the year, or a total of 46 in number, were secondary or due to spread of the disease from nearby centers of infection. This we believe a remarkable record in stopping the spread of the infection. It undoubtedly is outstanding evidence that if the farmers are interested to an extent where they wish to stop the spread of the disease, they can do so without difficulty.

We believe that in a review of the hog cholera work in Maryland, the source of infection in new outbreaks and factors responsible for the secondary outbreaks should be given

the highest consideration. For it is on this information that the prinicples of the Maryland Plan for the prevention of the disease are founded.

Of the 540 primary outbreaks, 462 of them were due to infected pork in garbage, table scraps, kitchen swill, slaughter house and butcher shop offal. This is 93% of the total cases in which we were able to determine the source of infection. Offal from small slaughter houses and butcher shops has been responsible for many cases this year where the product has been used for feeding hogs and dogs. Of these 462 outbreaks approximately 100 were due to the feeding of garbage collected from hotels, restaurants, institutions, etc. In fact, these were in what might be called garbage feeding plants, even though several consisted of only a few hogs. 36 of the primary outbreaks were due to the purchase of infected hogs. There were a number of cases this year where hogs were purchased that were really visibly sick at the time they were taken home. In 42 cases we did not obtain information regarding the source of infection. This was due to the fact that in many instances where veterinarians had vaccinated the hogs and were able to give the names of the neighbors surrounding the place, we did not, owing to lack of time during the rush season, make a special investigation to get this data.

Of the 46 secondary outbreaks, 27 were due to the movement of hogs or permitting such animals to run at large, or to line fences. This is undoubtedly the main factor in the spread of the disease. Two cases were ascribed to visiting and 1 was apparently due to a combination of unburied carcasses and dogs. In 16 cases no history was obtained on which to base the source of infection.

Another interesting point in connection with these outbreaks is the fact that 341 were of the backyard type. Most of these occurred in and about cities and small towns. Some occurred on small truck farms, but were nevertheless, of the backyard type. Only 245 cases were reported on farms where hogs are bred and raised. It is estimated that there are at least 35,000 such farms in Maryland, and it would therefore appear that hog cholera occurred on less than 1% of them during the year. We believe that any state in the Union that

had cholera on less than 1% of the farms where hogs are bred and raised would consider that they were having but little of the disease in the State.

Just why there is in most cases a delay in reporting sickness among hogs is a mystery. Nearly 10 years have elapsed since the hog cholera work was started in Maryland, and practically every one should know that specialists will make an examination of the sick animals free of charge.

Almost invariably year after year about 45% of the hogs are sick or dead before the cases are reported. The year 1926 was no exception. There were 8,876 hogs on the 586 farms at the time the disease appeared. Yet 1,392 were dead, and 2,619 others were visibly sick before the cases were called to the attention of the authorities.

At the time this article was prepared questionnaires had been received covering results in 565 outbreaks. This showed that the average loss per herd had been 7 hogs. We believe that reports covering such a large number of cases will enable us to make a close estimate of the losses in the 586 herds and this would show that 4,102 hogs died as a result of the disease. There is no doubt but that over 90% of the outbreaks of cholera in Maryland are brought, sooner or later, to the attention of the authorities. It has, however, been the custom to add 20% to the estimated losses from the outbreaks reported, in order that there can be no doubt but that we are conservative in our estimates. 20% of 4,102 hogs would be 820 additional animals, or a total estimated loss of 4,922 hogs for the year. It was estimated that on January first there were 192,000 hogs in Maryland, therefore the losses for the year from hog cholera were less than 26 per thousand. It has been estimated that in some of the Central States the losses from the disease during 1926 will run as high as 100 per thousand, and for the United States the losses will approximate 75 per thousand, therefore, as was the case last year, the losses in Maryland will only run approximately ⅓ of those for the United States.

Now, let us see just what that means. A loss of 75 hogs per thousand in Maryland would have meant that 14,400 hogs would have been offered as a sacrifice to the disease, against the estimated loss of 4,922. This is a difference of 9,478 hogs. Hogs in Maryland on January first were valued at $14.90 per head. This would show an additional loss of $141,222.20,

over that which was sustained. This is approximately 10 times as much as the work in the State is costing.

Your attention is respectfully called to the following table which gives the outbreaks by Counties compared with a 7 year average and the percentage of the hogs in the State.

Column No. 1. gives the percentage of hogs in the State.
Column No. 2. gives the seven year average of outbreaks in the county.
Column No. 3. gives the outbreaks reported in the county during 1926.

County	No. 1	No. 2	No. 3
Anne Arundel	3. %	25.7	28
Allegany	1.5	7.1	2
Baltimore	7.	22.4	23
Calvert	1.6	5.	14
Caroline	2.7	6.7	14
Carroll	11.5	12.8	21
Cecil	3.9	25.4	20
Charles	3.4	13.4	11
Dorchester	2.2	33.2	51
Frederick	11.3	33.	10
Garrett	2.	.3	0
Harford	5.2	12.3	17
Howard	4.	9.6	8
Kent	2.6	30.3	55
Montgomery	7.1	25.6	30
Prince George's	4.5	25.9	36
Queen Anne	4.2	10.4	25
St. Mary's	3.3	15.	32
Somerset	1.8	27.1	21
Talbot	2.9	27.4	50
Washington	10.	82.4	49
Wicomico	1.6	35.4	38
Worcester	2.5	43.4	31
Total		529.8	586

We believe that by devoting just a few words to what might be called the danger centers during the year, that it will emphasize a point worth while. As was the case last year, it was found that the "little fellow" was really a big source of danger. Apparently with but little at stake he does not care to observe the precautions recommended. 352 of the 586 outbreaks reported involved 10 hogs or less.

The 9 counties on the Eastern Shore have 24.4% of all the hogs in the state, yet they have turned in 305 outbreaks, or 52% of the total. Add to these the 5 other small hog raising counties in the state, Anne Arundel, Calvert, Charles, Prince George's, and St. Mary's, with a total of 15.8% of the hogs

in the state, and you will find that these 14 counties with 40% of the hogs in the state have turned in 428 outbreaks, or 73% of the total. This leaves the balance of the State with 60% of the hogs turning in only 27% of the outbreaks.

The point we wish to emphasize by the figures just quoted is that if there was anything mysterious in the introduction and spread of hog cholera infection, it would occur in the thickly populated hog raising counties rather than in those counties where there are comparatively few hogs, a large per cent of which are kept under backyard conditions.

Questionnaires were received covering the outbreaks in 565 herds. These show that in 251 cases no serum was used while in 314 cases the serum treatment was administered to the animals.

The following table gives the results where the serum treatment was used and shows results when administered by laymen and veterinarians.

	Laymen	Veterinarians	Total
Number of herds	134	180	314
No. on premises when disease appeared	2,110	4,675	6,785
Number died before treatment	242	600	842
Number deemed too sick to treat	215	440	655
No. deemed too sick to treat died	204	409	613
No. apparently well when treated	1,129	2,524	3,653
Number sick when treated	383	965	1,348
No. died that were apparently well when treated	86	66	152
No. died that were sick when treated	310	622	932

This table shows that 96% of those that were apparently well at the time of vaccination were saved, while 30% of those which were sick when treated were saved. Of all hogs treated 78% were saved.

The following table shows results where no treatment was used.

Number of premises	251
Hogs on premises when disease appeared	1,558
Number sick when disease was first noticed	296
Number that died	1,537
	91%

NOTE—These figures show that only 91% of those not treated died. This is really misleading, however, as a number of the exposed hogs were slaughtered for pork.

It is worthy of note that while 78% of all hogs treated in sick herds were saved while the losses in sick herds where the treatment was not used was 91%.

One rather distressing feature during the year was the serum shortage, a result of the wide-spread outbreak in the Corn Belt States. However, the enormity of the situation was much overdrawn. There were but 2 or 3 days at a time when serum could not be obtained. Prices in some cases were raised where the dealer had to go into the market and obtain a supply wherever he could get it. However, the University of Maryland had a lucky contract with a serum corporation with which they were dealing, which lived up to the contract undoubtedly to the best of its ability. With the exception of one period of approximately 10 days the University was able to supply serum at the low price of 1 cent per c. c. This was undoubtedly lower than serum could be obtained any other place in the United States except under contract. In view of the fact that hog cholera exists in the average herd for 2 weeks or more before the case is reported, and such a period never existed when serum could not be obtained, we feel that had the swine owners taken advantage of the opportunity to get serum when it was available, and really needed by them, there would have been but little complaint. The foregoing table shows that 44% of the herds were not treated, while in 1925, when serum was plentiful, 40% were not treated.

An old idea in a new form has been offered during the year as the result of the wide spread outbreak of cholera and the serum shortage that resulted, which we believe demands exhaustive consideration. This was universal vaccination. It has been suggested that the farmers themselves were to blame for the wide spread outbreak and serum shortage, because they did not vaccinate their hogs each year. It was claimed that because there was such a large number of susceptible hogs it gave the disease a chance to spread and as the farmers have not been regularly buying large quantities of serum, the serum producers were not encouraged to keep a big stock of the product on hand.

The raising of hogs and their protection from cholera is a dollar and cent proposition. Therefore, it is easy to determine just what universal vaccination would have cost the hog

raisers of Maryland for the past 8 years and to compare it with the cost and losses which have been sustained under the Maryland Plan. We believe this comparison is more marked in Maryland than in any other state, for the reason that very few hogs are double treated each year outside of garbage feeding plants.

We are not going to burden you by quoting a mass of figures at this time, but they are embodied in this article and will be printed with same. In making this estimate I have figured what the universal vaccination plan would cost from January first, 1919, to December 31, 1926. As there were practically no double treated hogs in the state at the beginning of that period, the hogs on hand at that time would have had to be treated. After the treating of those on hand January first, we have only figured what it would cost to treat the increase each year. Experts on Farm Economics have estimated that swine will easily reproduce themselves each year, therefore, we have considered the increase treated as the equal to the number on hand January first each year. I have not taken into consideration what it would necessitate to retreat some of the animals, and have assumed that every animal once double treated would retain the immunity given for its life-time. Therefore, we believe that we have given the matter every consideration that a double treatment enthusiast would wish for.

We have consulted experts on swine diseases and have been assured that an estimate of 4% breaks among the animals treated was very conservative. In this connection we have figured the 4% loss and valued the hogs lost according to the estimate of the value per head of the hogs on farms in Maryland on January first of each year.

Following this we have figured the loss under the Maryland Plan with 20% added each year in order that our estimate might be considered conservative. These losses have been figured at the annual value of the hogs on January first, as before.

I believe I am in a position to make an estimate of the amount of serum used in Maryland each year, and do not believe that it is running over 1½ million any one year. However, I have made an outside estimate of 2 million c. c. s each

year, or a total of 16 million for the 8 years. To this I have added the veterinarians' fees to the amount of 5 thousand dollars per annum, or 40 thousand dollars for the 8 years. This is all, I believe, fully explained in the following self-explanatory table.

UNIVERSAL VACCINATION SYSTEM

1919	On hand January 1st.	434,000	at $1.00	per head	$434,000.00
1919	Increase treated	434,000	" .50	" "	217,000.00
1920	" "	461,000	" .50	" "	230,500.00
1921	" "	427,000	" .50	" "	213,500.00
1922	" "	285,000	" .50	" "	142,500.00
1923	" "	299,000	" .50	" "	149,500.00
1924	" "	299,000	" .50	" "	149,500.00
1925	" "	202,000	" .50	" "	101,000.00
1926	" "	192,000	" .50	" "	96,000.00
					$1,733,500.00

1919	4% loss hogs on hand	434,000	17,360	$21.00	364,560.00
1919	4% loss on increase	434,000	17,360	21.00	364,560.00
1920	" " " "	461,000	18,440	19.00	350,360.00
1921	" " " "	427,000	17,180	13.00	223,340.00
1922	" " " "	285,000	11,400	11.50	131,100.00
1923	" " " "	299,000	11,960	13.00	155,480.00
1924	" " " "	299,000	11,960	11.25	134,550.00
1925	" " " "	202,000	8,080	12.90	104,223.00
1926	" " " "	192,000	7,680	14.90	114,432.00
					$1,942,605.00

Total cost of treating	1,733,500.00
Total losses	1,942,605.00
Total cost of system for 8 years	$3,686,105.00

1919	Hogs lost under Maryland Plan	6,528	at $21.00		137,088.00
1920	" " " " "	6,485	" 19.00		123,215.00
1921	" " " " "	4,258	" 13.00		55,358.00
1922	" " " " "	6,008	" 11.50		69,092.00
1923	" " " " "	5,059	" 13.00		65.676.00
1924	" " " " "	6,216	" 11.25		69,930.00
1925	" " " " "	2,511	" 12.90		32,392.00
1926	" " " " "	4,922	" 14.90		73,337.00
	Total value of hogs lost				$ 626,088.00

Annual average 2 million cc. serum, total 16 million	160,000.00
Veterinarians' fees	40,000.00
Total cost treatment	$ 200,000.00
Total loss under Maryland Plan	626,088.00
Total cost treatment Maryland Plan	200,000.00
Total cost Maryland Plan	$ 826,088.00
Total cost Universal Vaccination	3,686,105.00
Total cost Maryland Plan	826,088.00
Balance in favor of Maryland Plan	$2,860,017.00

Reliable authorities have assumed that there has been an annual average of 35 thousand farms in the State where hogs are kept. With 4% breaks as the result of the double treatment on these premises, we would have an annual average of 1,400 infected premises each year under the system of universal vaccination against an annual average of 537 under the Maryland Plan.

There is good reason to believe that 80% of the hog cholera losses in Maryland are due directly or indirectly to the feeding of infected pork in garbage, table scraps, kitchen swill, etc. It is therefore obvious that 80% of the losses in Maryland could have been prevented by simply not feeding any product that might contain this infected material. This procedure would not have cost a penny.

Just think it over and decide which offers the greatest protection and at the least cost—Universal vaccination, or the Maryland Plan for the Prevention of Hog Cholera.

Hon. Humphrey D. Wolfe, of Howard County, lead the discussion of Doctor Atherton's address and brought out many interesting and important facts concerning the matter of sanitation on hog farms. On his own farm Senator Wolfe has provided excellent facilities for his hogs by the use of green feed; self-feeders; and running water through his hog house, secured by diverting the water from a spring which originates on his farm.

President Harvey next called attention to the State Litter Contest and introduced the winner of the 1926 Contest, Mr. G. Carlton Oland, of Montgomery County. The contest trophy, a handsome engraved silver cup, was brought to the meeting by Mr. Charles Hines, 1925 Contest winner, a neighbor and fellow club member of Mr. Oland's. The cup was presented to Mr. Oland by President Harvey in a few well chosen words and, by way of response, Mr. Oland after thanking President Harvey for the cup, presented an interesting report of the development of his winning litter of twelve Duroc Jersey pigs, which attained a weight of 2,423 pounds at 150 days of age. Mr. Oland's excellent report follows:

MY LITTER CONTEST WINNERS

By G. CARLTON OLAND,

Winner of 1926, 150 Day 1,500 Pound Litter Contest.

Mr. Chairman and Gentlemen:

In the spring of 1922 Mr. W. C. Snarr, who was then county agent in Montgomery County, came to Sherwood High School to organize a pig club. With the consent of my father, I decided to join this club. About the middle of June a load of Duroc pigs from Foxhall Farm was brought to Rockville to be distributed to the boys. We drew numbers and got our pigs for which we paid fifteen dollars.

My pig got along very well until the middle of the summer. Then one day she rooted over a bee hive which was in her pasture lot and was stung so badly that in about two weeks, both ears and her tail dropped off.

After this happened, my father took this pig and bought me another one. The next spring, this sow farrowed ten pigs, all of which she raised. These pigs were sold for pork. The next spring, in 1924, she farrowed eight pigs. These were also sold for pork. The following spring this sow farrowed eleven pigs, nine of which she raised. These pigs were fed for the 150 day 1,500 pound litter contest sponsored by the Maryland Swine Growers' Association. I placed fourth in this contest. Two of the best sow pigs in this litter were kept for breeding purposes and one boar sold for breeding purposes. The rest were sold for pork.

In the fall of 1925 this same sow, Oland's Princess, was bred to Carr's Col. 2nd, a boar that I had bought that fall. The sow was cared for as well as possible during the winter, so that she would have strong, thrifty pigs in the spring.

Before farrowing, the sow was placed in a pen about six by ten feet. She farrowed thirteen pigs, one of which she mashed. As the sow had a good litter, I thought I would try for the 150 day 1,500 pound litter contest. The sow, after farrowing, was fed corn, and a mixture of wheat bran, wheat middlings, and oat middlings in form of a slop.

When the pigs were about two weeks old, they were taken into a two acre lot with blue grass pasture. Here, the pigs

had plenty chance for exercise and also plenty pasture. As soon as the pigs would eat, I made a creep for them. In this creep was placed milk, rolled oats, and later shelled corn. They were also fed slop with buttermilk, wheat bran, wheat middlings, and oat middlings.

When the pigs were about nine weeks old, the feed was gradually decreased on the sow so as to stop the flow of milk. When the pigs were nearly ten weeks old, they were weaned by taking the sow from the lot and leaving the pigs in.

After the pigs were weaned, a self-feeder was placed in the house in the lot. In this self-feeder was placed shelled corn, a mixture of wheat bran, wheat middlings, oat middlings, and linseed and meat meal and also fish meal.

As the pigs grew older, the bran in the feed mixture was cut down a great deal. During the 150 day period, I weighed the pigs every two weeks and sometimes oftener.

On August the fifth, the pigs were weighed by Mr. Anderson, the county agent, for the 150 day 1,500 pound litter contest. The litter of 12 pigs weighed 2,423 pounds, an average of 202 pounds apiece. As the pigs made a good weight for the 150 day period, I decided to try for the 180 day ton litter contest, sponsored by the Maryland State Fair.

During the week of August the twenty-third, the pigs were exhibited at the county fair at Rockville. There was a prize of fifty dollars offered for the best litter at 150 days of age. I won this prize and twenty-seven dollars besides, winning 1st and 3rd on junior boar, 1st on junior sow, and 1st and second on fat pen. On account of inclement weather during the fair, the association paid only 25% of the premiums. This cut down the receipts on the litter a great deal.

On the fourth day of September, the litter was weighed for the 180 day ton litter contest. The litter weighed 3008 pounds, an average of 250 lbs apiece. The litter probably would have weighed more had it not been for the fact that they lost weight during the county fair because of excitement and rather hot weather.

On the morning of the fifth of September, I took the pigs to the State Fair at Timonium. At this fair, there was a prize of $25 offered for the best ton litter. I won this prize. Besides, in the club class, I won second on junior boar, and

sixth on junior sow. In the open class, I won fifth on junior boar, 1st and 2nd on junior barrow and champion barrow and 1st on pen of junior barrows. I also won first on the National Duroc Record Association special prize for the best pair of Duroc Junior pigs. This makes a total of one hundred and thirty-six dollars. Six of the pigs were brought home on Friday, the other six had been sold and the buyer came to Timonium for them.

The six pigs, five sows and one boar, were sold to Mr. Whiteford, of Harford County, for $240. The other boar was sold to H. L. Benson, of Sandy Spring, for $43.88. The four barrows were sold for pork and brought $130.45. The one sow that I kept home was valued at $42.75. The total cost of feed for the 180 day period was $129.32. The total receipts including premium money and money received for pigs sold were $670.06. The total profit above cost of feed was $450.74. or an average of $37.56 a pig above cost of feed.

I think that club work has helped me a great deal. I have learned many things by being in club work that I would not have learned otherwise. Also it has helped me financially as can be seen from the above figures. I am hoping for a good litter next spring so that I can make an even better record than I did this year.

At the conclusion of Mr. Oland's excellent report, which was closely followed by the members present, Mr. J. W. Jones, of Montgomery County, local leader of the Boys' Pig Club to which both Mr. Oland and Mr. Hines, winners of the 1926 and 1925 litter contests belonged, was called upon for a short talk. It is regretted that a verbatim report of Mr. Jones' excellent talk is not available, for it carried much inspiration and information relative to the activities of the Olney Pig Club. Mr. Jones told in well-chosen words of the persistent work of the club and of the satisfaction which he has experienced in his work as club leader. He emphasized the fact that activity in this line of endeavor is highly productive; paid a fine tribute to the loyalty and industry of his club members; and called attention to the young men's club of his locality, which offers a field of activity for the older club members after they "graduate" from Four-H Club work.

Following Mr. Jones' address, the following officers were elected for 1927:

President, Mr. W. R. Harvey, Baltimore County; Vice-President, Mr. D. B. McDowell, Cecil County; Secretary-Treasurer, B. E. Carmichael, University of Maryland.

Executive Committee:

Mr. H. G. Hutton, Montgomery County; Mr. Charlton A. Dryden, Worcester County; Mr. Luther A. Short, Caroline County; Mr. Arthur Jones, Anne Arundel County; Mr. Ira C. Doub, Washington County.

Director of Maryland Farm Bureau Federation from Swine Growers' Association, Mr. C. C. Gelder, Somerset County.

Delegate to annual meeting of the Maryland Farm Bureau Federation, Mr. D. B. McDowell, Cecil County.

Adjournment followed.

REPORT
OF
Annual Meeting
OF THE
Maryland Branch
Atlantic Coast Poultry Producers Association
Royal Arcanum—Baltimore, Maryland
January 7, 1927

Meeting called to order by Vice-President F. M. Payne of Frederick, Md., acting as chairman at 10:00 A. M. with about 50 present.

Chairman Payne stated that the purpose of the meeting was for all present to gain all the information in respect to the production of poultry and eggs, and then the information relative to marketing the products that could be obtained.

The first speaker introduced by the Chairman was W. H. Rice of the Extension Service of the University of Maryland, who was scheduled to speak on the subject of "The Certification of Poultry Flocks in Maryland."

Mr. Rice spoke in substance as follows:

"By way of introducing this subject, it is probably desirable for those not acquainted with the subject to first understand what certification work is, what it involves, and what it means to the poultry industry and the individual poultry raiser.

The act of certifying means the act of stating or guaranteeing a certain state of condition of the objects or materials involved by a qualified person or agency.

There are two details involved in all certification work which are of paramount importance to the prospective buyer and with which he should become thoroughly familiar when considering the purchase of certified products.

First, the products are certified by whom? Of course, any person may certify anything with respect to any quality or

condition, but the most desirable condition from the purchaser's view point is that the certifying or inspecting agency or person, be a disinterested one from the standpoint of financial interest in the products involved. Hence the statement and certification as to the quality or condition of any product by a financially disinterested person or agency, recognized as being qualified to do so with accuracy and authority, is and should be recognized, as being of the greatest value to the prospective purchaser. Similar statements and action on the part of the owner or parties already financially interested in the products involved, naturally are not as immune to criticism as such certification by financially disinterested agencies or persons.

Second,—The products are certified as to what?

The importance to the purchaser of knowing just exactly what details are covered in respect to the qualities of the products, and to what extent of perfection these qualities are required or exist in the products involved, is readily understood.

By knowing these things any purchaser is in an intelligent position to decide if the products concerned are what he should buy.

Without knowing these things the purchaser may be subject to clever advertising schemes or personal claims of unscrupulous sellers of any products, baby chicks or breeding stock being no exception.

Any certification work is much more apt to be accurate and dependable if it is conducted by an improvement association co-operated with by State or Federal agencies, or both.

Certification of Poultry flocks, while somewhat new to Maryland, is not a new project altogether, since it has been carried on for several years in the States of Missouri, Kansas, New York and others.

In some states the term "Accreditation" is used to imply and involve the same details as the term "Certification" implies and involves in Maryland.

However, there is now a Federal Plan evolved which is designed to unify this kind of work in the several states and establish these terms in such a manner as to imply and involve the same details of inspection and control work. This is especially desirable in view of the confusion of these terms and

misunderstandings which often result in inter-state transactions involving stock, eggs and chicks.

This unification or standardization of plans of carrying on the certification and accreditation work as well as the terms used in the different sections of the country is a slow process because of the well established work in some states. Because of these conditions, prospective buyers are advised to acquaint themselves with the work carried on in any state in which they propose to make purchases of stock, eggs or chicks, as being "Accredited" or "Certified."

In view of the supply of stock within the State of Maryland which is of good quality there is little need for the average purchaser of eggs or chicks to go outside the state for stock.

Maryland is fortunate in having begun the certification work along lines which are in keeping with the National Uniform Plan of Certification and Accreditation. The National plan provides for progressive steps up to registration of individual birds in the Register of Performance, which is administered by a National Committee. However, the term "Certification" as used in Maryland involves the same details and factors of quality as the term "Accreditation" in the Federal Plan and in many others of the States engaging in this kind of work.

This National Plan is too lengthy to give a complete discussion and explanation of it here, except to say that the successive steps are as follows:—I. Accreditation—involving physical inspection of the birds and premises and practices. 2. Certification—involving the mating of accredited females with accredited males having a dam's record of 200 eggs or more. 3. Registration, an additional step for accredited and certified birds having been trap-nested and making an egg record of an arbitrary number, in supervised home flocks doing trap-nesting work. 4. Record of performance:—applying to females or males whose dam's and sire's dam's made an official egg-laying contest record of 200 eggs or more in addition to meeting the requirements for certification and accreditation. 5. Blood testing for Bacillary White Diarrhea is added as an additional side step to the different phases of the work at any stage.

The work in Maryland this year has consisted of the certification or physical inspection only. This work has consisted of the culling and selection of the flocks certified. Individual birds which were banded with the Association sealed leg bands, were examined for their Standard breed characteristics and egg laying qualities. No birds were banded unless they showed good type and color for their breed, and were free from all breed disqualifications, or any indications of being Grade stock, or possessing any outstanding defects. All birds banded had to show marked indications of vitality and constitutional vigor, show marked indications of being good egg producers in accordance with latest approved culled standards and be apparently free of any and all diseases.

Banded females are not required as yet in Maryland to be mated to pedigreed males from trap nest record females. This requirement may be added in the near future.

Flocks which were not properly housed, showed evidence of not being properly fed and managed, or without proper provision for sanitary practices to control diseases and parasites, or affected with any disease were refused certification.

Certified breeders in Maryland are required to house and manage their flocks in such a manner as to prevent and control diseases and parasites, and to promote the health and vitality as well as egg production to the highest point practicable. This inspection work has been done by an inspector approved by the University of Maryland.

The membership in this work in Maryland this year is exactly twice the membership of last year when this work was first begun. The number of birds banded this year are approximately twice the number as last year. These members' flocks and premises are subject to inspection without notice, at any time by the inspector, during the breeding season.

A number of these breeders will have limited amounts of stock, eggs, and chicks for sale this season.

The list of these certified breeders is now on the press and will be available in a short time through the Secretary of the State Poultry Association. As soon as they are off the press a quantity of these lists will be available through county agents and the State Farm Bureau office.

Chairman Payne next assumed the floor and introduced the subject of egg marketing on the New York Market.

Mr. Payne spoke in substance as follows:—The practices which are necessary in merchandising eggs are very different from those involved in the marketing of milk, meat, hay, etc. This is largely due to the fact that the methods of financing and handling of the products is largely traditional on each market in the country.

These market conditions are often perplexing and vexatious, and are constantly before the Management of the Atlantic Coast Poultry Producers' Association. The fact that market conditions in New York make it necessary for a co-operative like the A. C. P. P. A., handling "nearby" goods, to compete in business under conditions controlled by private business, handling the same type of goods, is evidence of the conditions under which the Co-operatives have had to fight for existence on the New York Market.

This condition can be more fully appreciated when one bears in mind that there are approximately 700 different egg dealers in New York, of which probably 90% are Jewish. It is useless for me to attempt to explain these matters since the Manager of the Atlantic Coast Poultry Producers' Association, Mr. L. A. Cooley, is the next speaker.

Mr. Cooley spoke in substance as follows:

What the Atlantic Coast Poultry Producers' Association is Doing

There are three general sections of the United States engaged in producing eggs—namely, the Pacific Coast States—the West Central States and the Eastern States. The Pacific Coast States producers in centralized areas engaged flocks consisting of thousands of birds—the West Central States have numerous flocks of a few hundred to a thousand or thereabouts —while the Eastern States producers engage flocks consisting usually of several hundred.

Co-operatives have developed on the Pacific Coast in the effective manner in which they have largely through the urge of dire necessity. Their organization was made possible and necessary through the mighty leveler "Disaster." Pacific Coast producers about 12 years ago found themselves with

glutted markets in the West and disastrously low prices. New markets were necessary, for these surplus products. From this chaotic condition developed the Pacific Coast Co-operative Egg-Marketing Associations, whose eggs are at present being sold in every market of major importance in the Eastern States.

These Pacific Coast eggs are produced on specialized farms, and delivered daily to branch packing houses of their Co-operative Association at which places they are immediately graded and packed for shipment under conditions the most ideal for handling. As a result of such handling, these cases of eggs reach the Eastern Markets in surprisingly excellent condition, and when the cases are opened for inspection by the buyers, each egg is as alike the others as "peas in a pod."

In the Mid-west the form of "Country-store Marketing" was formerly the general practice. However, during the past 5 or 6 years U. S. Department of Agriculture men in training small groups of men and women in grading of eggs, has resulted in the formation of several small co-operative egg marketing organizations. This brought a new type of egg to be offered on the New York Market.

In the East, there has been little change in the conditions here excepting an increase in the number of birds and farms, and a little greater specialization.

Little consideration is given by the Eastern producers to organizing co-operatives because of their nearness to the numerous markets and hosts of buyers. In this section a "False sense of security" revolves in the minds of the producers, which is undoubtedly due to their situation with reference to markets and buyers. There are about 700 receivers of nearby eggs in New York City alone.

As a result of this condition, the Eastern producers constantly change from market to market and receiver to receiver, sticking by one only so long as it seems good, and therefore making no effort towards insuring the stability of future marketing through any kind of organization.

Nearby eggs are always in demand at a premium in New York over eggs from more distant sources. However, because of this premium for nearby eggs, and the qualities of some shipments of eggs from the Pacific Coast and Mid-west, there

exists some evidence that some unscrupulous receivers are mixing these eggs in the "nearby eggs" and selling them for the "nearby" product.

This condition the Eastern Producers must tolerate until they are more effectually organized to combat such unfair practices. However true such cases may be, the fact remains that lots of unfounded stories exist in regard to merchandising eggs in New York.

The biggest cry from producers is in respect to returns.

The matter of the relation of returns to quotations is one of the chief points where producers direct criticism, and demand explanation of receivers.

As a matter of fact, quotations are only just a bit of information which may often times be dangerous, since quotations are only buying prices which exist temporarily, and are subject to decided changes on almost an instant's notice. For this reason this litttle information is often times dangerous, as it is little understood by most producers. In making returns, the Atlantic Coast Poultry Producers Association formerly made returns to its members on a weekly pool basis. Because of the numerous questions arising in respect to this basis of making returns, and the difficulty of understanding it by the members, it was decided to change this method. Now the returns are being made on the basis of daily pools.

Heavy losses of the Association through former management naturally has contributed to losses in returns.

Business in egg marketing in New York, is conducted largely on paper, or in other words, by credit and not cash. This, taken together with the fact that the egg business is an extremely perishable and unstable one, working capital may be easily consumed. This is a most important detail which must be closely watched in the operation of this Association.

The elimination and reduction of overhead expenses has been accomplished only through much deep study and consumption of time, in the management of this Association.

The failure on the part of the producer members to realize their ownership of interest in this Association, has been partly responsible for the Association not making a more rapid progress.

Producers are now coming to realize that change in marketing by moving from one agency to another is only of temporary advantage, besides being disastrous to the assurance of a satisfactory method of marketing their produce in the future.

Now, with reference to market conditions in New York—

Eggs from the Pacific Coast arriving in New York through the Pacific Egg Producers' Association arrive in all new, clean cases and equipment. These eggs are graded at the local receiving stations and when opened in New York are graded to the nth degree and as alike as peas.

Eastern producers packing as individuals and handling their own products are often careless, putting in all sorts of eggs, comparatively few doing rigid grading. Many of the egg cases arriving in New York have had newspapers, etc. packed in them which makes for a great lack of uniformity and is very unsightly and unattractive.

Inspection of cases of eggs at the Atlantic Coast Poultry Producers' Association receiving rooms consists of candling 6 eggs from each layer of each case. This is termed "spot candling" and serves as an index or key to the quality of each shipment. Cases found to be properly graded and labeled, pass through for sale without further inspection, provided the weight is correct.

Where cases are mislabeled according to grade, the entire case must be rehandled which adds to expenses of the organization. Producers can cut this expense of the organization to a minimum, by more careful grading and handling, and properly labeling each case before shipment.

The better grades or "Extras" of the nearby eggs are demanded for the better class of trade, hence the premium on "Nearby Extras," while the chain stores in New York handle the Pacific Coast eggs almost exclusively. Chain stores buy these eggs because of their being available in large quantities in a single shipment and because of their uniformity. These stores also sell principally to the middle class of people who usually do not demand the very highest quality products.

In merchandising eggs, each house as well as the Association at times has a surplus of stock to accumulate on its floors, which must be disposed of promptly. This of course

means a loss which varies greatly according to condition of the stock, the amount on hand and market conditions.

Nearby egg producers cannot entirely control the market in New York, as their volume of controlled products is so small. Because of the superior quality of "Nearby" goods, however, the "Nearby" producer can in an organized way, do much to stabilize the New York market.

We believe that if the "Nearby" producers will give our organization a fair trial, and will thoroughly understand the New York Market conditions and our methods of doing business that those members will be known as "stickers."

Following Mr. Cooley's talk the meeting was opened to questions and general discussion with reference to the Baltimore and New York Markets.

The functions of the Atlantic Coast Poultry Producers' Association in behalf of its members were generally covered in the questions and discussions.

Meeting adjourned 12:40 P. M.

REPORT

OF THE

Home and Community Committee Meeting

Maryland Farm Bureau Federation

January 6, 1927

As usual, much interest was displayed in the meeting of the Home and Community Committee, Maryland Farm Bureau Federation, in the Banquet Hall of the Rennert Hotel, on Thursday, January 6, 1927.

The Chairman, Mrs. Josiah Waters Jones, called the meeting to order promptly, and in the absence of Rev. J. Stewart Hartman, of Washington County, who was detained on account of a funeral in his own community, read a short prayer for guidance, after which all repeated the Lord's Prayer.

As the proceedings of the last Annual Meeting had been published and probably read by all present, it was decided to omit the reading of the minutes by the Secretary of the Committee, Mrs. M. Melvin Stewart.

The reports from the County Chairmen were most interesting and showed that the women are taking an increasing interest in the Farm Bureau meetings, working shoulder to shoulder with their husbands and brothers.

Worcester County

Mrs. F. J. Dukes, of Worcester County was ill, but sent a splendid report of her year's work, as follows:

Reports from the Farm Bureau Local meetings show that women have an interest in the meetings equal to that of the men.

Through the program of work that was so well planned by the committee, the subjects were of vital interest to every member of the home.

Extension speakers or specialists were always present to discuss the subjects with the people and splendid pictures illustrating the topic have been shown at nearly every meeting.

These pictures are so educational that the ladies make the best of their opportunities to learn of all things that pertain to the farm or home life.

These meetings gave them an idea they wanted even more of the good things that were to be had from these sources, so in several communities they asked for a monthly afternoon meeting with the Home Demonstration Agent where they might have home demonstrations to help solve their problems. Box Iron and Acquango Branch are two who have these, and some others report wanting the same.

With the Home Demonstration Agent I have visited some of these meetings and have noted the great interest the women take in the work.

The work of Acquango Branch for the year has been "The Home, Floors, Draperies, Furniture, both modern and antique, labor saving devices and everything pertaining to the betterment of the home."

The Chairman of this local tells me it has meant so much to them, and that they have gotten quite a lot out of the work.

The work of the other locals for the year has been practically along the same line as Acquango Branch.

The idea was conceived of having a Better Homes Tour in Girdletree, using a modern and old home. Mrs. E. T. Warner's was chosen for the modern demonstration home, that being the first stopping place, where home planning and furnishing were demonstrated. My home being a typical old farm house, I was asked if it could be one of the demonstration homes. At first I thought this a thing impossible, but with the help of our Home Demonstration Agent, we made it a thing that was possible.

We had with us on this tour Mrs. Krusen, a specialist in home budgeting and interior decorating from Wanamaker's, in Philadelphia. It would be hard to express to you just what this tour has meant to me in my own home in use of labor saving devices.

The most important spot in the whole world "Is the American farm home," says Dean Vivian, of the University of Ohio. The farm home, the farm family, the farm community need the influence of tasteful furnishings within the home and the beauty of environment without, with its flowers, shrubs,

trees and grass. It needs melody of song and the relaxing and recreating influence of family and group play, it needs social consciousness and a program of social activities which expresses the highest standards of neighborliness. These demands of the soul require time and thought rather than money and are needed in every farm family in every county and every state.

Home is the greatest teacher, the greatest industrial unit, and the greatest temple of religion in the world.

A house is built of bricks and stone,
Of sills and posts and piers,
But a home is built of loving deeds,
That stand a thousand years.

Washington County

Mrs. Henry C. Foster, Chairman for Washington County was also unable to be present on account of illness.

Talbot County

Mrs. Charles E. Willson, of Talbot County could not be present because of the illness of her father, but sent the following written report:

This year of Farm Bureau work has been very strenuous in some ways and delightful in others.

There are four locals functioning at this time, namely: Sherwood, McDaniel, Trappe and Easton. Each local has its own Home and Community Chairman, Entertainment Committee and Publicity Committee. Sherwood and McDaniel have good attendance at their local meetings. Easton is also in line. Trappe Local is climbing the "Hill of Farm Bureau Knowledge" by degrees. Great interest is manifested at all meetings. The old "standbys" as we call them are always on hand. We held a wonderful picnic for all the locals in the County at Mr. Fred Bartlett's home. Games were indulged in by the children, horseshoe pitching, tug-of-war and baseball by the older ones. Also bathing and boating and music gave life to the occasion.

On December 18, we held our Annual Farm Bureau Dinner in the Easton High School. The dinner was prepared by ladies selected by me from the different locals. Between seventy-five or eighty people were there. A talk was given by our

President and those officers of other locals. The Resolution Committee gave their report. Mrs. Isaac Dixon gave a talk on "Co-operation in Denmark," Mrs. Harry Williams on "Co-operative Farming."

The Chairman of the Entertainment Committee of the Easton Local entertained the members for a few minutes with selections, including music. Mr. Hughes, of Baltimore, delighted his audience with his wit and humor in which he brought out the idea of what farmers could do if they could only look ahead and not be, he said, "like the lightning bug." He said,

"The lightning bug is brilliant,
But he hasn't any mind,
So he goes through this world
With his headlight on behind."

The Farmers' Wives Exchange, a project of Easton Local, is still progressing. Some ladies have left us, but we do not vary much in our sales. We have always been fortunate enough to have store rooms donated for our market.

St. Mary's, Queen Anne's and Prince George's Counties

St. Mary's County, Queen Anne's County and Prince George's County were not represented and sent no reports.

Montgomery County

Mrs. James D. King reported:

Madam Chairman, ladies and gentlemen:

As Chairman of the Home and Community Committee of my home County, I cannot boast of having accomplished anything through my efforts, as the first part of the year I was handicapped with sickness which finally ended in a double operation. Following this, our farm buildings were all destroyed by fire, and since that time we have been kept quite busy rebuilding. But I am trying not to be a pessimist and think the old saying is true; "Every cloud has a silver lining."

While I haven't accomplished anything so far as my efforts go, I have a splendid report to make from our State Chairman's home local at Olney which has a very wideawake and active Home and Community Committee Chairman in

Miss Clara May Ruby which is shown by their programs and committees. On the program and publicity there are four men and four women.

Poultry Committee—Four men and one woman.

Junior Activities Committee—Three men and two women, the chairman being a woman.

Legislative Committee—Two men and one woman, the chairman being a woman.

Music Committee—Six men and two women.

All other committees have no women members. Reports of all committees are given at each meeting.

At a meeting of the Home and Community Committee five women were elected as a Board of Governors for a Farm Bureau Exchange. This Board organized with Mrs. Harry Williams, Chairman, the other members being Mrs. John E. Muncaster, Mrs. Josiah J. Hutton, Mrs. Margaret Sinyard and Mrs. Harry Benson.

This "Olney Farm Bureau Exchange" was open every Saturday from July 2nd to November 13th, inclusive, sold goods to the amount of $1,213.66, paid all expenses and closed with a balance of $13.20 in the treasury.

Ten per cent. brokerage was charged Farm Bureau members—and twenty per cent. to non-members, the additional ten per cent. being credited on a membership. One woman made her Farm Bureau membership by this method before the Exchange had been running one month.

The sales of the forty-two contributors ranged from fifty cents to $178.64.

The success of this undertaking, which was a source of supply of good fresh country products, home cooking, etc., to the city, town and village women as well as a source of income for the farm women, was due to the determination, loyalty and unselfishness of the women of Olney Farm Bureau Local, those women who were willing to give of themselves for the benefit of others.

Under the auspices of the Livestock Committee a visit was made to the Beltsville Farms, men, women and children sharing in the interesting and instructive benefits.

Kent County

Mrs. Harry Williams of Kent having been chairman of that county for only a very short time said that she had very little to report as yet, but she felt the women should take a more active part in the very important work.

She presented Mrs. Isaac H. Dixon, who farms in Kent County. Mrs. Dixon has the farm woman's problem very much at heart, since she was raised on a farm and knows its hardships. She invited any of the Farm Bureau women present and any of them in Maryland to "run away" for a little vacation to Washington some time and make use of her apartment at A and 1st Sts., N. W. A group from Talbot and Kent have already availed themselves of Mrs. Dixon's invitation. She said "Come, have a good time. If you are looking for amusement, go across to the Capital and listen to Congress making rules and laws for the farmers."

Howard County

Report of Home and Community Chairman of Howard County, Mrs. M. A. Lord, was as follows:

The women of Howard County were very active last year due, perhaps to the fact that a Home Demonstration Agent was in the County for the first time. I called a meeting of the local leaders early in the year and it was agreed that Miss Metzger should work with the women of the locals.

I do not know of the various things accomplished by the different locals, but I know that when the locals worked together big things were accomplished, such as the Farm Bureau Picnic, The County Exhibit and last, the Annual Banquet.

Harford County

Miss Mary E. W. Risteau, who came in late, reported that she had resigned last spring as Home and Community Chairman in Harford County, but at their last Board meeting the men had reappointed her.

Frederick County

Mrs. H. L. Davis, who in addition to being Chairman of the Home and Community Committee of the Farm Bureau,

is also President of their splendid group of Club Women in Frederick County, reported progress in the work of her county. Mrs. Gaver, Home and Community Chairman of Ballinger Farm Bureau Local (called the best local in Frederick County) was asked to tell the secret of its success. She said: "Every woman in that Local does what she is asked, and one woman is on the program at each meeting."

Dorchester County

Mrs. Arthur K. Austin, of Dorchester County, reported:

Dorchester County Farm Bureau was busy during most of the year. We started off with the largest banquet we have ever held in the County, which was a great success.

We have our clubs throughout the County operating with us in every way and our women get much benefit from them. They are eager to take advantage of every meeting. Most of us go to the meetings with the men.

Taking the work as a whole we had a successful year.

The men always invited us and wanted us with them side by side. They always consulted us on every subject that we are interested in and that meant really every subject.

We have prospects favorable for a very successful year in 1927.

Charles County

Mrs. Zavier W. Garner, Home and Community Committee Chairman for the Charles County Farm Bureau, gave the following report:

Madam Chairman:

When I left this meeting last year I was overglowing with enthusiasm and plans for the year's work. I felt that my first work was to call the local chairmen together and make plans.

This I did in February with the result that one Chairman attended. Rather a drop from my expectations, but we planned a County meeting for the first of March with poultry as the chief topic of discussion both morning and afternoon and a talk by our Public Health Nurse on "Properly Balanced Meals for the Farm Home." This meeting was advertised in the county papers, and each local chairman notified. It was

a success so far as having enough people present to make a worthwhile meeting, but they were not Farm Bureau people and again there was only our local chairman present.

I have been unable to get my Committee together for any organized work. I have attended every meeting of the Board of Directors and took part in general County work.

I suggested the putting of "Mr." and "Mrs." on the notices to make the woman feel that she was really a part of the organization. This was decided on and carried out.

I was made Chairman of the Boys' and Girls' Club Committee and a member of the Program Committee, the only standing committee we had.

The banks in La Plata loaned the club boys money to buy purebred pigs. The Farm Bureau Committee decided on the breed to get, rather an important thing for the County.

In connection with club work, Mr. E. G. Jenkins and Miss Dorothy Emerson were invited down for a conference with prospective club leaders. This work is growing slowly.

On Tuesday, July 27, we held our annual picnic at Chapel Point. Tuesday was perfect, the crowd was around one thousand, a big turnout for our County. Owing to the fact that free chances on a pig were given to all who entered the gates before twelve o'clock, the majority came early.

At 10:30 there was a baseball game between the McConchie Club Boys and the White Plains Prospective Club Boys, ending in a victory for McConchie.

At 12:30 a basket luncheon was served. Fried chicken, country hams, salads of all kinds and even hot biscuits were in evidence.

Following luncheon, a piano was carried to the point nearest the river and placed under a large oak tree. Mr. Gibson, Music Director for the State, took charge. Printed copies of songs were distributed and for half an hour every one joined in a real community song service, the first of its kind to my knowledge ever held in the County.

The singing over, our president introduced our State Chairman, Mrs. Jones, who in a short but well directed talk told the women of the importance of the Farm Bureau and the men of the importance of getting women interested in Farm Bureau work.

Next, Mr. Gray, Washington Representative of the National Farm Bureau, told what the organization had done through legislation.

Last, but not least, Dr. T. B. Symons talked on co-operation. His address was just right.

The draw for the pig was next conducted, with Mrs. Lee Jameson, a real Farm Bureau woman, winner.

The dinner gong was sounded and punch donated by the County Farm Bureau and cakes by the ladies of the County were served.

The end of a perfect day had arrived and everyone went home with kind thoughts for our farm organization.

At the County Fair held the last of September, the Farm Bureau women joined with the Federated Club Women in helping to make a big success. I felt very much honored in being given charge of the Girls' Club Booth.

The Farm Bureau women sold ice cream for about two hours on Children's Day and cleared $12.80. This with a little added they used to buy a steam pressure canner, which was used in giving meat canning demonstrations during the December local meetings.

This winds up our year, with all our failures. Yet, when we look back, we feel our work has not been lost and we find that a great deal of our success has been due to the untiring efforts of our Home Demonstration and County Agents.

Carroll County

Mrs. James W. Beacham, the local leader in Carroll County, reported continued progress among her women.

Calvert County

Calvert County's Chairman, Mrs. Charles R. Belt, was too modest to report the splendidly successful supper she had engineered to make a fund as a nucleus for a Farm Bureau market for Calvert County women, but it was reported by those who had attended and had seen written accounts of it. Their plans are rapidly maturing and meanwhile the women are becoming more active in the meetings.

Baltimore County

Mrs. Joshua A. Fowble, Chairman of the Baltimore County Home and Community Committee reported the following:

The third year of the Home and Community Committee has come to a close, with some successful results.

The market at Sparks, its main project, was a success. This year it opened June 1st and closed September 1st, being open fewer months, but on account of late spring and scarcity of vegetables it was thought better to open in June rather than May. There was $22,244.96 taken in and after all bills paid, there is a balance of $150.00 in the treasury. The week of the Timonium Fair from lunches and sale of market stock there was over $1,300.00 taken in. The market contributors helped serve the lunches at the Merryman Cattle Sales in the Spring and Fall, also the Farmers Picnic. Not so much was derived from the latter on account of the terribly rainy day.

I attended several of the Directors' Meetings, also meetings of the Executive Board of the Market.

The Market was only open on Saturday this year, and the manager was paid $5.00 for the day and to take orders during the week.

Each of the eleven locals has a chairman.

The Baltimore County women are very distressed over the loss of their most efficient Home Demonstration Agent who left the County December 31st, 1926. She was such a help to all the women throughout the County as well as to the Farm Bureau in every way.

I desire to wish the Home and Community Committee success in all its undertakings in the State as well as the County for the coming year.

Anne Arundel County

Mrs. M. M. Stewart reported work in Anne Arundel County as follows:

First, in answering the questionnaire sent out by our Chairman, would say that women have been given full recognition on committees both by the locals and by the County Farm Bureau.

I have attended every meeting of the Board of Directors and served on the Committee for Annual Meeting, picnic, fair, etc.

The Farm Bureau members have continued this year to assist Boys and Girls to finance their short courses and attend various agricultural fairs. Have also in many communities held joint meetings with the juniors—in some cases the juniors appearing on programs. The Farm Bureau men and women have aided in the Junior Poultry Clubs. Anne Arundel teams have won at several fairs and one of our girls won in the State Judging team, later taking second place in the National Contest. She has since helped train other juniors and has been given some work of culling flocks for which she is paid. She has also been asked to address other Farm Bureau groups.

An egg laying contest in the county was sponsored and helped by Farm Bureau leadership.

As Chairman of Better Homes Week for Anne Arundel County, I have endeavored to have the farm bureau women and the club women work together in a County-wide program. This they have done for three years very successfully.

We have been forced to discontinue our exchange temporarily because it was found impossible to find a suitable store room in Annapolis which was within the price we could pay.

This past year our main object, aside from urging the women to work in meetings shoulder to shoulder with their husbands, has been to get many rural library branches established, so that the real farm family might enjoy them. Every Home and Community Chairman was urged to interest her group and ask for a branch of the County Library to be loaned her neighborhood. Several are already functioning and others are being arranged for.

In some localities money has been earned by Farm Bureau groups and given to schools to help increase their supply of library books.

Farm Bureau Women and Club women co-operating, have earned money to help the Central Library as well as the Hospital.

The women in most locals have arranged the musical and entertainment features as well as planned for the refreshments.

Several community fairs and exhibits were put on and, needless to say, the women did much of the work of these.

Our County papers in Anne Arundel give us splendid publicity in all of our endeavors. I learn that some County papers are antagonistic because perhaps the town merchants complain that the Farm Bureau helps its members to buy co-operatively and thus takes business from the town. I feel sure that if the editors are approached in the right manner, and are made to understand that the more successful the farmers can become through co-operation, the better subscribers and advertisers they will be, the editors will do all possible to boost your organization. Have a Publicity Chairman in each local—or let your Secretary act as one—and through the newspaper your neighboring local will know what interesting programs you are having.

There being no unfinished business and no new business, the election of the State Chairman was next in order.

Mrs. J. W. Jones, who has served in this capacity since the formation of the Home and Community Committee in the Maryland Farm Bureau Federation, asked that some one else be selected to fill this position—since in her opinion "Rotation in Office" is necessary if an organization is to live and go forward.

Nominations were made for:

Mrs. Harry T. Williams—Kent County.

Miss Mary E. W. Risteau—Harford County.

Mrs. J. Wilson Lord—Howard County.

Mrs. Fowble, Baltimore County, was also nominated, but asked that her name be withdrawn.

The ten county chairmen present being the eligible voters then voted by ballot.

The Chairman announced the election of Mrs. Williams, who responded with a few words saying she would do all she could to make the work successful. Mrs. Williams has had a wide experience working with farm women, having served as Lecturer of the Maryland State Grange for several years.

"Daddy Jenks" made a plea for the Boys and Girls, quoting from Miss Dorothy Emerson's talk at Boys' and Girls Club Conference the day previous. "You need have no fear that you will not gain the co-operation of the parent if you are sincerely interested in that parent's boy or girl. Some of

the youth living under the hardest conditions and in isolated communities are in great need of leadership and help."

Because of the lateness of the hour, Mrs. Charles W. Sewell, Director of the Home and Community Committee of the American Farm Bureau Federation spoke for only a few moments. She stressed the importance of the women's work, urging them to serve shoulder to shoulder with their men folks in improving rural conditions.

Miss Lavinia Engle, Manager of the League of the Women Voters, explained their Legislative program, many of the things therein being of vital interest to our rural women.

In the general meeting on Friday, January 7th, a resolution was offered thanking Mrs. Jones, our retiring chairman, for her untiring efforts in Farm Bureau work among the women, and also as a member of the State Board of Directors and of the Executive Committee.

National President Thompson was introduced and spoke briefly as follows:

Remarks by Samuel Thompson, President, American Farm Bureau

"Where we have the best communities is where the men and women work together. As I think of the work we have been doing in the past then think of the gigantic tasks that we are facing, I know that men could not do it alone. I know that the women folks cannot do it alone but I think both together will be able to accomplish the things we want to do and start out to do. You folks have made it possible in community work and looking toward raising the standard of living by using the means that you have at hand, to make the most of your opportunities right at home. I remember a woman came to me one day and was exasperated because a certain lady had been out giving a considerable amount of time on matters of legislation. She said she had checked up on that woman and ventured to say that she does not stay home long enough to darn the holes in her stockings, through which she could not catch a mouse. You must look forward to the place where you can return your services. Your home, and the service that you can return on the National program are things that we should start out to return.

I congratulate you people for meeting here and studying these problems. We can best solve them together. I consider this a wonderful opportunity to come into your state for I have known many of your leaders, and it has been a real pleasure to associate with them. Right in my own home neighborhood, I have a friend living, from Maryland. I am glad to be here and in your meeting and saying a few words to you and I want to say that we can work together better because we have seen and heard one another and have expressed some of the things in our minds. We can raise the standard of living by taking the means we have in hand and making the best of them."

Remarks by James W. Davis, President

"I have no speech prepared for you folks, but I am glad to be with you. I do not know just what Mrs. Jones would like me to talk of, but there are some other meetings that I should attend and I just want to tell you that I feel very lucky just as I felt sometime ago when I was out on an auto trip with my brother-in-law and we ran out of gas. Right across the road was a gas station. About a year later the same thing happened again, and my brother-in-law said that he would rather have my luck than to learn how to steal. I think that same kind of luck is with me again because the National President has made a better speech than I could make. Since there are several other meetings on hand, if you will call this my speech I will go. I feel that we need you women and we are going to try and get a little closer in the future years than we have in the past.

What the Women of Howard County Can do to Help the Farm Bureau

MR. BRANDENBURG,

"I feel worse than Mr. Davis, because there have been two speakers ahead of me. As I have been asked to talk about ten minutes on this subject, however, I shall try. This is the first time I have ever undertaken to make a speech, but I want to say that one matter weighing heavily on my mind is the women in the Farm Bureau. We have had a fine expression of women's work in the Farm Bureau in my County. There

are a few things I would like to bring out especially. One is the boys' and girls' club work in the county which is very successful and is a matter which I think every mother and sister connected with the Home and Community work should take to heart. I feel that the Home and Community Committee working in the state of Maryland will realize sooner or later that the boys and girls working in our Clubs, will possibly in the next ten or fifteen years be doing the things in Farm Bureau and Home and Community work that we would like to be doing today. We have great plans, but I do not know if we shall be able to accomplish them. I believe it will take the next generation to do it. I believe that the boys and girls, being trained in this Club work today, will become the active members in the future and accomplish this work. In our county, the boys and girls in the Club work, are more efficient today than most of the men and women, and they will get very far ahead of us. I would like to urge every member of the Home and Community work to take this thing to heart and take it home and give every assistance possible in the boys and girls club work in her county. We have at present about 175 members in the club work in Howard County. The things we desire in the Farm Bureau and the Home and Community work will come through the boys and girls. We are spending hundreds of dollars in our county today to prepare them to take care of themselves. We do not think it fair to turn our boys and girls off the farm without any knowledge of what they must face. We want to educate them along the line which we would like to see them go. Do not think everyone of them will stay on the farm, because they will not. I cannot help but feel that somewhere in the U. S. in some Girls' Club there has already been born a girl who will some day be President of the U. S. I am a strong supporter of Woman Suffrage and I think the day will come when we will have a woman governing the country.

In Clarksville our women are very active and therefore have a very strong Farm Bureau local. Another phase of work and I guess all Farm Bureaus are experiencing the same trouble, and that is lack of finances. We have no locals in Howard County with a Treasury unless the men go down in their pockets for money, and that is very hard. I believe

if the Home and Community Committee will take it upon themselves to set aside a little fund of maybe $10.00 or $25.00 which the Farm Bureau might use, in course of time we could build up a very good program and bring in some outside speakers or something of that sort. Men have no way of making money in the Farm Bureau. It is up to the Home and Community Committee, for if the men plan a way, the women must do the work. Madam Chairman, I think that about covers the subject, and I also think my time is about up. I thank you very much.''

What the Farm Bureau Women can do to Help the Home Demonstration Agent

By VENIA M. KELLAR, State Home Demonstration Agent.

There were two things in the letter your Chairman wrote me which impressed me very much. One was, she asked what the farm women could do to help the Home Demonstration Agent. The other was that I should speak 10 minutes. I do not want you to feel as Mark Twain did when he attended a church service once and he was so impressed by the fine sermon being preached that he planned to give $5.00 when the collection plate was passed. However, the sermon lasted so long and as the time increased he thought less of the sermon, until at last he resolved that when the collection plate was passed he would certainly steal what was in it. I do not want you to feel that way towards me, so I shall certainly try and stick to my ten minutes. If you are a member of a local, nothing would please a Home Demonstration agent nearly so much as to have you offer your services, asking what you can do to help her. I wonder how many have done that. You have waited until she asked you, then you have offered fifty or more excuses. I am going to make a special plea to you women who will hear this, especially mothers to attend each meeting in the girls' club work. I want to tell you women frankly, that you with your mother's love have more to offer than any Home Demonstration agent in this state. I know that you are busy, and when I read that the working hour of a farm man is 11 3/10 hours a day and that of a farm woman is 11 4/10, I wonder how they do have time to help the Home

Demonstration Agent. I am going to ask you to budget your time for the coming year and put something in for the help of the Home Demonstration Agent. If you do not want to work singly, ask someone to help you. The Home Demonstratin Agent has hardly found the time year after year to give her services to the mass of people, because so many individuals call on her for help. In closing, I will ask you to get in touch with your Home Demonstration Agent and see what you can do to help her.''

What We Can do to Help the Public Health in Our State

By DR. R. H. RILEY, State Board of Health.

I am very sorry that Dr. Fulton could not be here this morning, but I will attempt in the brief ten minutes given me to outline the Public Health work in Maryland, and give you an idea of some of the things accomplished and tell you some of the things you can do to help perfect our organization. To fight these various germs we must organize and there must be constant attention given these things and be no let up at any time. We will talk to you about preventive medicines and not curative medicines. We are trying to prevent diseases and believe it is much more profitable to direct our efforts toward preventing and not curing. The State Board of Health consists of eight members. The work is administered through eight bureaus.

1st. Bureau to record all births and deaths, as they occur in the state of Maryland. We believe this Bureau is most accurate as a recent check was made upon it, and it was found to be nearly 100% correct. There are many uses for these birth records and also the death record must be shown on all Insurance Certificates.

2nd. Bureau of Bacteriology.

3rd. Bureau of Diagnosis of Diseases.

4th. Bureau of Personnel(this is the business end).

5th. Bureau of Sanitation.

6th. Bureau of Child Hygiene. This deals with child mortality.

At this point I want to present some charts to substantiate my remarks along different lines with regards to showing how

antitoxin has helped to reduce the death rate. I also have a chart here on tuberculosis showing how the disease has been on the decline for the past several years and we hope it will continue. Among the colored people the mortality is the highest. There is one thing that has helped tuberculosis considerably in this state and that is the sale of Christmas seals. This permits the Maryland State Department of Health to hold clinics in all parts of the state and any person having symptoms of the disease is requested to go to these clinics and an examination is made. If these clinics are kept up, I think we will be ahead of any state in the next two or three years with regards to this particular disease.

I also want to present a chart on typhoid fever mortality. In most every section of the state we have nurses who tell the mothers how to treat the cases and take care of the patient so as to prevent other members of the family from contracting this disease. This chart shows how the death rate had declined since 1900 up to the present date. I also speak on scarlet fever, the cause of it, which the doctors have been trying to discover for years and years. This has been discovered in recent years and a preventive has also been found. Also measles, the cause and preventive of same. And whooping cough. For this disease there is not much that can be done, though there is a whooping cough vaccine. To do all this and perfect these various branches, we must have organization. We should have in each county a full-time health officer. I want to present a chart showing what other states have done with regards to full-time health officers. Maryland has only four men giving their full time to this work. If the legislature would give the state a little more money it could be used along these lines. The four counties having these full-time officers are Montgomery, Allegany, Frederick and Baltimore. Anne Arundel has a part-time officer. If there are any questions any of you folks would like to ask, I shall be glad to answer them."

Mrs. Isaac Dixon asked if Bovine Tuberculosis is communicable to humans. Dr. Riley stated that it has been discovered that tuberculosis of children does probably come from drinking milk from infected cows and he thinks the only safe way is to scald the milk for very young children, even though the cows have been tested."

What We Can do to Help the Federation of Women's Clubs

By MRS. ALCOCK,
President State Federation of Women's Clubs

"It is a pleasure to have a part on your program and I bring you greetings from the Maryland Federation of Women's Clubs. I am going to tell you what the state Federation is. The Maryland State Federation of Women's Clubs is composed of 122 Clubs with a membership of over 18,000. The purpose of the Federation is to unite club women in Maryland for the purpose of mutual interest. We follow plans outlined by the general Federation. We have eight departments. There is work for every woman. We do not ask that all Clubs or any Club be interested in all these departments of this division, but we urge that each club select some line of work in which they are particularly interested and follow this out.

In closing, I want to read you a message of Mrs. Sherman, President of the Federation of Women's Clubs.

> "One of the best things the club has done is to teach us that every one of us has something to give, her own individual contribution to make to the sum total that we call civilization.
>
> It is not only that we want the country woman; we need her. We want many more town and city women, but if they come they will bring chiefly the strength of added numbers.
>
> The country woman has something new and fundamental and rich to give us, and it is this that we must have if the club movement is to continue to be an actual growth, a symbol of those trees of life whose leaves are for the healing of the nations.
>
> There is no doubt that the General Federation of Women's Clubs needs the farm woman. Perhaps she also needs us."
>
> MARY SHERMAN,
> *President of the General Federation of Women's Clubs.*

"Daddy Jenks" then closed the meeting with the Benediction of the 4-H Club Boys and Girls.

"Father, a needy one stands before thee; I that speak, am he."

REPORT

OF THE

Canning Crops Conference

Baltimore, Maryland, January 7, 1927

The meeting of growers and canners from the various canning crop producing counties of Maryland was called to order at 9:30 A. M., Friday, January 7, by Chairman Henry C. Whiteford. This was the second meeting of this group held in conjunction with the annual meeting of the Maryland Agricultural Society.

Mr. Whiteford in his opening remarks discussed briefly the canning crops situation in Maryland. He pointed out the necessity of keeping abreast of the times, that the industry was spreading and competition becoming more keen. He emphasized the importance of the research being carried on by Federal and State departments and urged growers and canners to avail themselves of opportunities to familiarize themselves with the findings of these departments.

Mr. Whiteford, at the conclusion of his remarks, introduced Mr. L. M. Goodwin, canning crops specialist for the University of Maryland Extension Service.

TOMATO IMPROVEMENT PROJECTS IN MARYLAND

By L. M. Goodwin, University of Maryland

The season of 1926 was marked by mild interest on the part of both canner and grower in tomato improvement projects. This no doubt was due to uncertain market conditions for the canned product resulting from an abnormal pack for 1925.

The average contract price for 1926 was 20 cents, which of course was not encouraging to the grower. However, due to a reduction in acreage of approximately 40% and extreme unfavorable growing conditions which reduced the yield per acre fully 50% the price of open market tomatoes went as high as 90¢ per ⅝ bu. basket. No doubt the high price paid

for open market stock will stimulate interest in improvement projects for 1927.

Community plant beds: At last year's tomato conference the opinion was expressed that the community plant bed has served its purpose or it was not considered necessary to stress this demonstration as much as had been done in previous years. My travels around the state this year do not substantiate this opinion. It is my observation that the plant bed demonstration conducted as recommended in the Bulletin, "More Tomatoes From Fewer Acres," can still be used to great advantage. Open plant beds are, generally speaking, poorly conducted. By means of the recommendations set forth in the State Bulletin it is possible to produce superior plants and I feel that all counties should have demonstrations based on these recommendations. One change that I might suggest is in the rate of seeding. It has been suggested that 15 lbs. of tomato seed are required to seed an acre. I feel that this should be cut to at least ten pounds to the acre.

Cloth Covered Cold Frames: The community plant bed should be considered a means to an end. It is a step leading up to the use of the cloth covered cold frame or other methods whereby conditions can be more effectively controlled. It has been repeatedly demonstrated that earliness increases yields. Maryland stands in need of increased yields and the improved quality of the raw stock that goes with the high yield.

I would like to see the cloth covered cold frame demonstrated in tomato growing counties of Maryland for 1927.

Southern Plants: The South has not proved to be an entirely satisfactory source of early plants. One plant grower in particular shipped some splendid plants to Maryland during 1926. This same firm also shipped some poor ones. So it is entirely evident that if this source is to be used rigid shipping point inspecton is necessary.

Cape Charles Plants: This has not proved to be a satisfactory source of plants to date. I made two trips to Cape Charles during 1926 and it was my observation that inexperienced growers may be one of the main causes of the failure of this project. There is no great difference in the earliness of the season at Cape Charles and Maryland. So if any advantage

is to be gained with Cape Charles plants every advantage must be taken of known methods of good plant production.

Seed Sources and Varieties: Ten variety tests were conducted in Maryland the past year in coöperation with the Experiment Station. The tests were distributed as follows: College Park (1), Cecil County (1), Kent County (1), Talbot County (2), Caroline County (2), Dorchester County (2), and Worcester County (1). Twenty-one varieties were used in the tests. An effort was made to include sufficient varieties to represent all the types commonly grown in Maryland. The tests will be continued over a period of four or five years in order to determine if possible the variety or varieties best adapted to the different areas of Maryland.

Seed Stock: Approximately sixty acres were put out for seed by the Tri-State Packers' Association. The project was under the supervision of the Canning Crops Specialist. Adverse weather conditions were responsible for low yields and as a result only about seven hundred pounds of the Radebaugh seed were saved. Also, about twenty pounds of Marglobe seed were saved for distribution. It is probable that an acreage of this variety will be put out for seed by the Association during 1927.

It is deemed advisable for the Association to have more than one variety available for distribution to its members in that no one variety seems to be best adapted to all sections of the Tri-State territory. This is particularly true where the factors of soil and disease are considered. Lower Maryland and Delaware soils are light in character and Fusarium wilt is prevalent. Therefore, it would seem advisable to have available a good wilt resistant variety. Marglobe has given indication of being one of the best.

Grading of Canning Tomatoes: It was my observation that the grading of canning house tomatoes at points where it was inaugurated the past season did not prove entirely satisfactory.

1. The growers cannot see where the grading will improve the canned product under the present system. The tomatoes are graded by sample and no attempt is made to separate the stock into the various grades before it is canned. The canners realize this weakness in the system and an effort is being

made to find a practical method of separating the raw stock into its respective grades.

2. Seasonal conditions and the supply of tomatoes seemed to influence the standard. For instance, tomatoes were passed for No. 1 grade the past season that would not qualify under normal conditions.

3. The price for No. 1 grade must be high enough to compensate the grower for his loss on culls.

SWEET CORN PRODUCTION

BY A. D. RADEBAUGH, Raw Products Specialist, American Can Company

The growing and canning of sweet corn is meeting with greater competition each year, and something must be accomplished to reduce production costs of raw stock.

Results of several years study and experiments show production costs can be materially reduced if growers and canners will put into practice the following recommendations:

Grading of Sweet Corn Seed: Experiments have shown that when ears on the stalks grown from large kernels are in the best canning conditions, those grown from small kernels are so tender and watery that the corn is unfit for use, these ears requiring about four or five days longer under existing conditions to reach the same canning stage. Therefore, this would cause a lack of uniform maturity in the corn at canning stage.

This unevenness in maturity, due to different size kernels, is true of different varieties of sweet corn, but is not as pronounced as in Country Gentlemen. The nearest approach to the condition found in Country Gentlemen is the narrow grained type of Stowell's Evergreen.

Seed Treatment: Much has been said about seed treatment of sweet corn for disease control.

Experimental evidence to date tends to show that there is no advantage in treating disease-free seed but disease-infected seed is benefited by treating before planting.

It is suggested that canners have seed corn tested for presence of root, stalk and ear rot of corn, and if these diseases are found present and disease free seed cannot be secured, that all seed be treated previous to planting.

A number of organic mercury compounds now on the market are very useful for this purpose. Full directions accompany these preparations.

Preparation of Land: Where barnyard manure is not available, green manures may be used to advantage to furnish fertilizing material and the necessary humus.

In considering green manures the growing of sweet clover previous to sweet corn seems the most practical. A good system is to seed the sweet clover in peas for the canning factory or the last cultivation of field corn or tomatoes.

Seven to fourteen days before corn planting time, the clover should be plowed under. The sweet clover crop furnishes nitrogen and a large quantity of humus for the following sweet corn crop.

It is not necessary to enlarge upon the fact that a good seed bed should be prepared.

Commercial Fertilizers: Where stable manure or a good green manure crop is turned under, 200 to 400 pounds of fertilizer, having the analysis 2-12-4, should be applied per acre. Where stable manure or a good green manure crop is not turned under, 300 to 500 pounds of fertilizer, having the analysis 4-8-4, could profitably be applied.

In general, it may be said that applications of 500 pounds or more to the acre should be applied broadcast, or part broadcast and part in the hill. There is danger of injuring the plant roots with a heavy application of fertilizer in the hill. Application of 200 to 300 pounds to the acre may give better results if applied in the hill rather than broadcast, but this would probably depend somewhat on the character of the soil and the amount of rainfall.

It should be remembered that the greater the humus content of the soil, the larger the amounts of commercial fertilizer that may be safely and profitably used.

Lime: Dr. Whiting summarizes the influence of limestone on the sweet corn crop as follows:

1. It neutralizes the acid and renders inactive the toxic aluminum, iron and manganese of the soil. Aluminum and iron are especially toxic to sweet corn and are considered predisposing causes of root rot. Limestone precipitates them and consequently stronger and better sweet corn results.

2. Limestone increases the production of available nitrogen for the growing crop.

3. Limestone makes possible the growing of legumes, which is a necessary step for the best crop production.

The value of applying lime to soils is accepted by scientists and farmers and needs no defense. It is a paying investment.

Depth of Planting: The heavier the soil the more shallow should be the planting. The depth of planting ranges from 1 to 4 inches, depending on the type of soil used. On heavy soils shallow plantings produce the largest yields while on loose loams it does not make much difference at what depth the seed is planted, although too deep planting is generally considered undesirable. In cold soil (early planting) sweet corn should not be planted as deep as in warm dry soils. It is well to remember that shoepeg corn will rot quicker in the soil than other varieties and early plantings should never be made deep as the soil is cooler and damper several inches down than near the surface.

A large majority of the failures to secure good stands of early corn is due to planting the seed too deeply.

From root studies of the field corn plant, it has been found that the roots spread out laterally about one or two inches below the surface of the soil, regardless of the depth of planting.

Rate of Planting: The shorter-growing types, such as Crosby and Golden Bantam are generally planted at a higher rate than the taller varieties, such as Evergreen. On the more productive corn soils, more seed can be used to the acre than on the poorer soils. In dry seasons, thin plantings have given best results.

The rows are generally 36 to 42 inches apart for the taller varieties of sweet corn, but some growers plant as close as 24 to 30 inches between rows for the dwarf and semi-dwarf varieties with good results.

When grown in check rows, the distance between the hills will depend largely upon check wire available, but three feet seems sufficient for most varieties.

Cultivation: Cultivate three to four times, using a two-horse cultivator twice or three times and a one-horse cultivator for succeeding cultivations. Harrowing with a smoothing

harrow when the corn is small destroys weeds and reduces the total cost of cultivation.

Deep cultivation destroys roots, many of which are but one to two inches below the surface of the soil. In clay soils, the roots are nearer the surface than in loose soils, and therefore, more shallow cultivation is necessary on clay soils than on the lighter soils.

Thinning and Suckering: Under most conditions two or three stalks to the hill are sufficient and on lighter soils probably more than two stalks to the hill are advisable.

Suckering is the removal of the so-called suckers, which are small, stalk-like growths that appear at the base of the main stalk. Experimental results show that removal of the suckers decreases the yield, and does not increase earliness nor appreciably increase the size of the ears. The later the suckers are removed the greater the reduction in yield.

Contacts with canners and growers show that a large number of them advocate and practice suckering sweet corn, thereby not only greatly increasing the cost of growing the crop, but actually decreasing yields per acre.

SWEET CORN SELECTION AND BREEDING

By W. B. Kemp, Associate Professor of Genetics and Agronomy, University of Maryland

It would be exceedingly gratifying if it were possible to come before you with definite figures showing the tremendous yield improvements that have been made by sugar corn breeding practices. Unfortunately it is not possible to do this. It is not intended to convey the impression that selection of seed is not well worth while. For any seed stock is apt to have been grown or stored under such conditions that mold, frost injury, or injury from some other cause, will have seriously interfered with the vigor of germination, hence some type of selection is generally necessary. I am referring at the present time to selection for hereditary improvement—to that type of selection that causes the best seed from one year's crop to produce a bigger yield than the best seed of the previous crop was capable of producing.

On careful consideration the reason becomes apparent why it has been so difficult to effect the same rapid yield improvement in corn as has been effected in the case of some other crops. Within the memory of man now living, the tomato was a love apple, and was not considered as an economic crop. Since the time when the production of tomatoes for human food began, tremendous improvement has been made in many desirable characteristics of this plant and by the fruit produced by it.

The reason why such rapid improvement has been possible may be summarized in the general statement that among plants reproduced bisexually, man is enabled to effect and to maintain germinal improvement by selection to that extent to which he utilizes the margin of variation between reproductive ability and productive ability within the environment in which the plant is grown. By reproductive ability is meant the ability of the plant to reproduce itself. By productive ability is meant the ability of the plant to produce a crop of the commodity for which man grows the plant.

Seed is so closely tied up with the plant's reproductive function that the most difficult yield improvement may be expected among those plants that are grown for seed or grain. A few illustrations will make the meaning of this statement clear.

Spinach is grown for the production of succulent leaf on a plant with the least possible tendency to run to seed. The processes of natural selection will select continuously against such a plant. Spinach not subjected to artificial selection would be expected to produce plants with a leaf system designed to manufacture food and transfer it quickly to a central stem that would produce the greatest possible quantity of seed. For, when plants differ in their seed producing capacity, that type which produces the greatest amount of seed in relation to other types will gradually replace them, because of the tremendous numbers of progeny produced by such plants. Hence, that spinach plant best adapted for the uses for which man has put this crop, can be maintained only by incessant conscious selection on the part of man. He is holding the plant population in an unstable equilibrium far removed from the type from which all natural processes are

bending their efforts. Hence, for such a plant, improvement by artificial selection should produce relatively rapid but temporary results. To maintain the improvement acquired, incessant selection must continue.

Returning to the tomato, it is clear that this plant is grown for fruit in which the seed is of course inclosed. The natural processes should produce large quantities of fruit that might be quite small in size, but should be literally filled with seed. The tomato that is most popular for human use is not necessarily the tomato that contains the most seed, but is the one with good shape, free of core, and with thick fleshy walls between the seed capsules. In tomatoes, therefore, man's ideal is not so far removed from that of nature as is the case with spinach, but there is a sufficient difference between the most productive and the most reproductive plant to cause rapid improvement within the limits of variability that natural processes present. Man selects a fruit that is sufficiently different from the natural fruit to cause improvement, considered in the light of his ideal, to be relatively rapid, and here again, incessant selection should be necessary to maintain his ideal type.

Coming now to a consideration of corn, the natural processes should produce a plant capable of the most rapid reproduction. Man wants a plant capable of producing the largest amount of high quality seed. It is clear that for this plant, therefore, the ideals of man are very close to the type that the natural processes should present to him. The margin between reproduction and production is therefore narrow. Artificial selection is not nearly so conducive to rapid improvement, because the aims of man are so nearly the same as those of nature. To the extent that man is selecting for quality, improvement should be relatively easy, but to the extent that he is selecting for quantity of crop, improvement should be much more difficult. As an illustration of this fact, it may be worth while to refer to a few of the many investigations that have been conducted at the different experiment stations in their efforts to improve corn.

A number of years ago the Illinois Experiment Station started with one lot of corn within which it selected for high protein content and for low protein content. Within the high

protein strain it again selected for high protein, and within the low protein strain, it again selected for low protein. This process was continued through many years with a result that year after year the average protein content of the high protein strain gradually increased, and the average protein content of the low protein strain gradually decreased.

At the same station a selection experiment was conducted in which the effort was to isolate strains of corn with high oil content, and strains with low oil content, and the results of this experiment were of the same nature as those when per cent. of protein was the characteristic selected for. Two strains were isolated from the same parent, one producing regularly grain with high oil content, the other producing grain with low oil content.

At the Ohio Station in one investigation, a strain producing ears very high on the stalk and another strain producing ears very low on the stalk were isolated from the same parental strain. It may be observed that in each of the investigations referred to, qualitative characteristics were sought for and were readily obtained.

To illustrate the effect when quantitative characteristics are sought for in such a plant, that is when the effort is made to increase the yield of grain, one experiment at the Illinois Station should be sufficient. This station by the ear-to-row method of breeding endeavored to isolate from a variety of corn a high yielding strain and a low yielding strain. Here again each year of selection brought about an increase in the differences in yielding capacity between the two strains of corn, but when these two strains were compared with the original variety to determine the degree of improvement obtained, it was found that while the low yielding strain produced much less than the parent variety, the high yielding strain produced very little more than the variety not subjected to this method of improvement.

It may be worth while to state again that the results of a number of investigations conducted up to the present time would substantiate the conclusion that the efforts of man in yield improvement of a crop are capable of producing rapid improvement to the extent that the end product toward which he selects is different from the end product toward which the

natural processes select. The natural processes tend to select toward a type best able to reproduce itself. Hence, the natural processes tend to select toward a plant that is a relatively heavy seed producer. When man's ideal is heavy seed production, therefore, it would seem that he must be content with relatively slow improvement in proportion to the effort expended, and the improvement that he is able to make seems to be tied up largely in the narrow margin that may remain between the ultimate aims of the natural processes and those for which he seeks.

There are many breeding practices that have been recommended for crop improvement. For purposes of the present discussion, I do not care very much which method may be most efficient. The fact remains, however, that any efficient method seems able to accomplish results in accordance with the foregoing principles. There is one phenomenon, however, that manifests itself in most animals and plants—a phenomenon that man is endeavoring to turn to his economic advantage. I refer to hybrid vigor.

When plants or animals are sufficiently close in their relationship so that fertile crosses are readily made, but when their characteristics differ appreciably, the first generation of a cross between them frequently manifests a degree of vigor greater than that of either parent. This excess vigor is largely lost in later generations, and the progeny in these later generations are so irregular in their characteristics that the first generation is the only one in which such vigor may usually be put to economic use.

In corn, as inbreeding occurs, vigor is rapidly lost and a high degree of uniformity in the progeny is obtained. In the first generation of a cross between such reduced, uniform strains, the same uniformity is retained and the vigor of the progeny approaches, equals, or at times exceeds the vigor of the original varieties before inbreeding began. Many stations are now endeavoring to find those particular inbred strains which produce the most desirable and highest yielding progeny in the first generation of the cross between them. Progress to date indicates that economic utilization of this phenomenon may be brought about, but the expense and trouble accompanying such breeding practices is so great that

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the work must apparently be left in the hands of a few central agencies working on a large scale and the seed must inevitably be sold at a price very appreciably higher than seed produced by ordinary processes. For the general grower, therefore, more simple processes will probably continue to be advisable. Each variety of corn seems to come into a genetic balance best adapted to the conditions under which it has been grown. Hence, seed acclimatized to a given section will usually produce higher yields than yields obtained from seed not so acclimatized. This means local strains for each general set of soil and climatic conditions. Qualities other than yield may usually be more readily obtained, but require incessant selection. So in conclusion it would seem worth while to state that, for favorable strains of sugar corn for canning. it seems well worth while to select continuously for that sugar content conducive to the best quality in the canned product, and that depth of kernel that will give a number of cases per ton sufficient for the realization of profit by both the grower and canner, and that uniformity of ripening necessary if one pulling is to take the whole crop in best condition for canning.

Following Mr. Kemp's address Mr. S. B. Shaw, Maryland State Department of Markets, reported briefly on the results obtained in grading canning house tomatoes under Federal and State Supervision. Mr. Shaw reported that the work was carried on at three points in Maryland the past year. He stated that the short crop and resultant poor quality had placed many obstacles in the way of the success of the project. However, Mr. Shaw went on to say that the average price received by growers for graded tomatoes was above the prevailing contract price for 1926.

RESOLUTIONS

The following resolutions were offered and passed unanimously by the members:

WHEREAS, there is an increasing demand for established U. S. Standards of tomatoes both the raw stock as well as the canned product, and

WHEREAS, both growers and canners are interested in developing responsible and impartial inspection of canning products at point of manufacture or shipment,

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Therefore be it resolved: That the canning section of the Maryland Farm Bureau Federation hereby urge our State and Federal agencies to do everything in their power to develop standards in raw and canned products for this industry and plans be made to extend and further the State and Federal inspection of both raw stock and canned products at point of shipment.

Be it further resolved: That the following committee of three be appointed from this section to coöperate with the Tri-State Packers' Association to accomplish these ends: F. B. Bomberger, Chairman, J. R. Phillips and H. C. Whiteford.

WHEREAS: In the development of the production of fruits and vegetables for the canning industry there are many problems necessary to solve to meet the great competition of other States, and

WHEREAS: The President and Board of Regents of the University of Maryland have requested the Governor and legislature to provide for a horticultural building in which provision would be made for investigating production problems of fruits and vegetables for canning,

Be it therefore resolved: That growers of canning crops here assembled in annual meeting to consider production problems indorse the request for a horticultural building at the University of Maryland and urge the Governor and the members of the Legislature to consider favorably this request, and

Be it further resolved: That a copy of this resolution be sent to the President of the University, the Chairman of the Board of Regents, the Governor of the State of Maryland, and each Senator and Representative of the Legislature.

REPORT

OF

Fifth Annual

Beef Cattle Conference

Baltimore, Md., January 7, 1927

The fifth annual conference of breeders and feeders of beef cattle was held in Baltimore, Friday, January 7, 1927. The meeting was called to order by Mr. J. W. Jones, of Montgomery County, chairman of the livestock marketing committee of the Maryland Farm Bureau Federation.

Mr. Jones briefly discussed the purpose of the conference and the results of former conferences, and stated that he did not intend to make a speech, but preferred to present the speakers who had been secured for the meeting and let them have the bulk of the time, as he believed that they had important information to give to the producers who were present.

Mr. Benjamin F. Creech, Extension Animal Husbandman, of West Virginia University, Morgantown, West Virginia, was introduced and delivered the following address:

FATTENING AND MARKETING BEEF CATTLE IN THE EAST

By BENJAMIN F. CREECH,
University of West Virginia.

Mr. Chairman and Gentlemen:

In attempting to discuss with you a few of the more important problems in the production and marketing of beef cattle, I am reminded of Pharaoh's dream.

"And behold, there came up out of the river seven well-favored kine and fat-fleshed; and they fed in a meadow.

"And behold seven other kine came up after them out of the river, ill-favored and lean-fleshed; and stood by the other kine on the brink of the river.

"And the ill-favored and lean-fleshed kine did eat up the seven well-favored and fat kine. So Pharaoh awoke."

If we could have had a young Joseph, a true interpreter of dreams, to have warned us during the fall of 1920 that the seven fat years were at an end, and that we were entering upon seven lean ones, what a difference there might have been in the beef cattle industry.

During the years 1921 to 1924 inclusive, we witnessed the passing of four lean years, thus taxing to the very limit the courage of the cattle men and shaking their faith, until many had to sell their herds and farms, and in a few cases all their earthly possessions to meet the exactions of their creditors who were unwilling to wait longer, or who could not go farther in the face of a great agricultural depression which was world-wide.

There were but few of us who saved, and so invested during the years of plenty, but what we suffered to a certain extent along with the more unfortunate. But this financial tragedy of our own time and experience, like that in the land of Egypt, has very largely moved on to a predestined conclusion.

These remarks may seem afar from the subject of production and marketing, but I feel that if we had a keener understanding and a fuller appreciation of the livestock situation that such information, if properly used, would be very helpful in solving some of our problems in production and marketing.

It was not until 1922 that we, in West Virginia, started off with a full realization that our livestock problems were not in mass production. Before that time but little had been done on economic production, standardization, and co-operative marketing.

Nineteen twenty-one found us with too many cattle in West Virginia with but little outlet for our surplus stockers and feeders. It was about this time when a number of our better cattle men began to do some thinking, and it was they who said to the Animal Husbandry Extension group of the College that they were no longer interested in a production program that did not take into consideration the market requirements, and some co-operative marketing plan. It was this group that pledged its support to a co-operative marketing program and a quality product.

Our co-operative marketing program has already done much to change the practices in production. In the first place our farmers are giving more attention than ever before to a quality product with uniformity for a community or county. This is especially true with our sheep men. The lamb improvement work that is being done each spring, and the marketing of the lambs co-operatively, thus selling on grade and quality, has greatly increased the net value of the West Virginia lamb crop.

West Virginia is rapidly shifting from the three and four-year old steers, finished on grass, to the yearling and two-year old steers that go to feed lots of Ohio, Pennsylvania, and Virginia. We believe that this change will increase the number of our beef cattle, and that it will be more profitable to the producers. West Virginia feeder cattle sell for a premium, to the Ohio feeders, of about fifty cents per hundred over that of the western cattle. West Virginia cattle do not have to be acclimated and they are quiet in the feed lot, and easy to handle.

During the past two years our men have manifested a great deal of interest in the feeding of baby beeves. But since the production of corn is a limiting factor in West Virginia, the feeding of baby beeves can never be very profitable.

The cost of producing calves, yearlings, two and three year old steers, has been a much discussed subject in our state. In 1915, our station started some work at Lewisburg in co-operation with the Federal Department, to determine the most satisfactory and economical method of wintering beef cows for the production of calves, and the cost of raising the calves to weaning time. This work was continued over a period of four years. The summary of this work is as follows:

AVERAGE COST OF WINTER FEEDING THE COWS DURING THE FOUR YEARS AND THE AVERAGE COST FOR EACH CALF RAISED TO WEANING AGE

Lot No.	Rations and Amounts	Average Winter Gain or Loss	Average Cost per Calf Raised to Weaning
1	Corn silage.....23 lb Mixed hay ..... 8 lb Wheat straw .... 2½ lb		
	Average	-- 4 lb	$34.39
2	Corn silage.....24 lb Soybean hay..... 7½ lb Wheat straw .... 2 lb		
	Average	47 lb	$34.38
3	Corn silage.....24 lb Cottonseed m..... 1½ lb Wheat straw .... 7 lb		
	Average	20 lb	$36.54
4	Shock corn .....15 lb Mixed hay .....10 lb Wheat straw .... 2 lb		
	Average	—49 lb	$46.82

Corn silage and wheat straw, with either mixed hay, soybean hay, or cottonseed meal is a much cheaper ration than shock corn, mixed hay, and wheat straw for wintering beef cows for the production of calves. The use of silage in the ration reduced the cost per calf from $10 to $12. The cows fed on the mixed hay and soybean rations produced a larger calf crop than those fed on the cottonseed meal. The average cost per head of raising their calves was practically six per cent. less.

In 1916 another experiment was started to determine the value of different rations when fed to beef calves, and the subsequent effect on pasture gains.

The calves were divided into three lots of ten each and fed the following daily rations:

		Pounds	Total Average Winter Gains
Lot 1	Corn Silage	12.3	54 lb
	Rye Hay	3.9	
	Cottonseed Meal	.6	
Lot 2	Corn Silage	12.3	47 lb
	Clover Hay	4.9	
Lot 3	Mixed Hay	9.2	98 lb
	Grain Mixture	2.6	

SUMMARY OF COSTS AND GAINS

	Lot 1	Lot 2	Lot 3
Average cost of wintering	$11.61	$10.15	$18.07
Average length of winter periods (days)	134	134	134
Average gain per calf, winter (pounds)	54	47	98
Cost of feeds per day, winter	0.087	0.076	0.135
Average cost of summer feed	5.60	5.60	5.60
Average length of summer periods (days)	168	168	168
Average gain per calf, summer (pounds)	193	192	182
Average total cost per year	17.21	15.75	23.67
Average total gains per calf (pounds)	247	239	280

The calves weighed 385 pounds at the beginning of the winter period. The calves which made the greatest winter gains also made the greatest total gains for the year, although they did not gain so much during the summer period as calves which put on less gain during the winter. Similar results were obtained in handling yearlings, two and three year old steers.

Following the experimental work with feeding calves, work with yearling steers was started to determine the cheapest winter ration. Fifty yearling steers were divided into five lots of ten each and fed the following rations:

FOUR YEAR AVERAGES

Average weight per steer at beginning of feeding period	Rations	Av. gains or losses for four winters	Av. gain on pasture	Av. daily gain on Pasture
662	*Lot* 1 Corn Silage .....20.0 Mixed hay ..... 5.0 Wheat straw ..... 2.54 Av. cost of winter ration $14.49	— 1 lb	317 (164 da)	1.9
726	*Lot* 2 Corn Silage .....23.1 Wheat straw ..... 4.9 Cottonseed meal..... 1.0 Av. cost of winter ration $14.32	62 lb	263 (158 da)	1.6
630	*Lot* 3 Mixed hay .....11.9 Wheat straw ..... 4.07 Av. cost of winter ration $15.67	—35 lb	309 (158 da)	2.0
698	*Lot* 4 Corn silage .....20.0 Soybean hay ..... 6.0 Av. cost of winter ration $14.76	27 lb	240 (140 da)	1.7
682	*Lot* 5 Corn silage .....20.0 Rye hay ..... 6.0 Cottonseed meal .... .5 Av. cost of winter ration $16.82	11 lb	281 (140 da)	2.0

Effect of Winter Rations on Pasture Gains of Two Year Old Steers

SUMMARY OF THREE YEAR AVERAGE COSTS AND GAINS

Rations per Steer	LOT 1 Hay 13 Corn 2	LOT 2 Sil. 29	LOT 3 Sil. 39	LOT 4 Sil. 30 C.S.M. 1.5	LOT 5 Sil. 25 Straw 6 C.S.M. 1	LOT 6 Sil. 25 Hay 7
Initial weight, lbs.	963	961	965	964	966	965
Winter gain or loss, pounds	17	—10	66	50	85	59
Average total cost winter feeds	$22.88	$10.78	$14.40	$15.62	$14.85	$17.41
Summer gains	312	347	283	312	259	277
Winter and summer gains	329	337	349	362	344	336
Cost of feed per lb. of winter and summer	$0.11	$0.07	$0.08	$0.08	$0.08	$0.09
Final farm weight	1,292	1,298	1,314	1,326	1,310	1,301
Drift per steer	71 lb	75 lb	75 lb	75 lb	61 lb	80 lb
Dressing percentage	55.6%	56.9%	57.0%	57.1%	56.3%	56.8%

Conclusions

On the whole the steers which made larger winter gains also made larger total gains for the year, when fattened on grass the following summer.

The steers which made only slight gains or lost in weight during the winter made greater summer gains on pasture than steers which made larger winter gains.

Consequently differences in weight of steers at the end of the winter, due to rations fed, are gradually minimized during the time of summer fattening on grass.

Since differences in weight, due to winter feeding, are gradually minimized but not wholly overcome during the summer season of fattening on grass, it is important that cattle to be marketed early should gain considerably more weight during the winter than if they are to be marketed late.

Another series of experiments were started at Lewisburg in the fall of 1925 in co-operation with the Federal Department for the purpose of comparing the results of wintering, and feeding grain on grass to good and medium steers. The approximate results of the first year's work are as follows:

Lot 1

20 steers grading good. Average weight per steer on Dec. 7, 1925—955 lbs.

Lot 2

20 steers grading medium. Average weight per steer on Dec. 7, 1925—870 lbs.

Approximate ration fed to both lots:

Corn silage	24 lbs.	Approximate cost of winter ration, $18.00.
Wheat straw	5½ lbs.	
Cottonseed meal	1 lb.	

Average weight on April 25 when turned to grass 1,051 pounds for the good steers and 964 for the medium steers.

Winter gain 96 for the good steers and 94 for the medium.

Daily gains for the good steers .69 pounds and for the mediums .67 pounds.

When turned on grass ten of the good steers and ten of the medium steers were thrown together and fed grain or grass, and the remainder of each lot were turned on grass together without grain.

GAINS DURING SUMMER

	Good Steers on Grass and Grain	Medium Steers on Grass and Grain	Good Steers on Grass	Medium Steers on Grass
Average initial weight Apr. 24..	1,051.5	961.5	1,057.5	963.5
Average final weight Aug. 28..	1,345.5	1,251.5	1,281.0	1,168.0
Average gain per steer.....	294.5	290.0	223.5	204.5
Average daily gain (125 da)..	2.35	2.32	1.78	1.63

Average Ration on Grass

Corn .....5.39 pound

Cottonseed meal .....1.7 pound

FINANCIAL STATEMENT

	Good Steers on Grass & Grain	Medium Steers on Grass & Grain	Good Steers on Grass	Medium Steers on Grass
Initial value of steers in fall of 1925	7¢—$66.85	5½¢—$47.85	7¢—$66.85	5½¢—$47.85
Sale price Aug. 28, 1926	10.10	9.50	9.10	8.50
Dressing % cold basis, Lewisburg	55.1%	54.4%	53.3%	51.8%
Profit from grains fed per steer	6.36	4.58		--
Net profit per steer	19.33	28.32	12.97	23.74

This experiment with feeding grain on grass to good and medium cattle will be continued over a period of four years.

The use of grain on grass this year increased the value of the steers $1.00 per hundred, while the good steers sold for only 60 cents per hundred more than the medium steers.

Co-operative Marketing

We feel that we have more information on production and have gone much farther with our production program than with our marketing program. In view of this fact we have very largely turned our attention at the present time to cooperative marketing. We hope to work out a permanent system of marketing whereby the farmer will be able to market his livestock with some intelligence and receive a price in accordance with the quality of the livestock produced. At the present time we have twenty county co-operative livestock shippers' associations functioning in West Virgina. These associations are organized into a state association which handled over a half million dollars worth of livestock each season.

An active discussion of Mr. Creech's address followed, especially with reference to co-operative marketing and the possibilty of securing for Maryland feed lots good feeder cattle direct from the pastures of West Virginia.

Mr. Walter B. Peppler, of Corkran, Hill & Company, meat packers, Baltimore, Md., was then introduced, and delivered the following address:

HOW CAN THE MARYLAND FEEDER OF BEEF SECURE THE BEST PRICE FOR HIS PRODUCT

By WALTER B. PEPPLER,
Corkran, Hill & Company, Baltimore, Md.

Mr. Chairman and Gentlemen:—

The beef situation for the last few years reminds me of a story of a Jew and a Scotchman. One morning a certain gentleman rushed into a state insane asylum and demanded the immediate apprehension of two gentlemen who were going through very strange motions on a street corner. The management of the asylum insisted on knowing why this particular gentlemen considered the two individuals in question crazy. The management was thereupon informed that on this particular corner a Scotchman was tossing dollar bills into the air and the Jew was running around picking them up and handing them back to him. That certainly was evidence of insanity of the individuals in question.

To the bystander the present predicament of the beef feeder and the beef packer is comparable to the previously mentiond situation, for a good many seem to be under the impression that both the beef feeder and the beef packer are tossing their money to the winds and each is picking up the others money and handing it back to him.

Before attempting to present a few facts on the subject assigned to me for discussion, I wish to state that I am very glad for an opportunity to appear before this group of beef producers, and I have come here not with the idea of protecting the packer, but with the idea of presenting some of the packer's problems which must be understood and appreciated by the producers just as the producer must be understood and appreciated by the packer if the beef industry is to continue. It is a well-known fact that the majority of beef feeders lost a great deal of money on their feeding operations from 1919 on. However, the beef producer was not

the only one who was hard pressed by the post war deflation. In proportion to the amount of money invested the meat packers lost more money than the feeders during that period. War prices so intoxicated business men and farmers with profits that no thought was given to means by which business was to withstand the deflation that was sure to come. When the crash came the packer had no choice in the matter but to take stock in the situation and devise means to meet it. This careful study of the situation has given rise to some important changes in the beef packing industry. It was really the cause of the developement of what is known as the beef cutting department. This department made it possible for the packer to take care of the large number of the undesirables marketed by producers because of the liquidation of their herds. The study, however, was not confined merely to major products, but was extended into all branches of the industry. In the by-products department, the uncovering of quality and making edible products out of what was formerly unedible by applying improved methods of processing, gave a new impetus to the business. The manufacture of Digester Tankage is a specific example of the uncovering of quality and turning out a high-class product by the application of improved methods. Scientific discoveries were put into practice as never before in a serious attempt to secure full value from each bit of raw material that went into a packing plant.

While the packer was making these changes in his actual operations, significant changes were taking place in regard to consumer demands and the like. With the increase in urban population the great increase in apartment living, the decrease in average size of family, all of which was speeded up by the war, the bulk of consumer demand has changed from the large roasts and steaks of the past to the small three to four pound roasts and pound steaks of the present. In fact, the kitchenette has remodeled the beef business. The packer, distributor, and the producer as well as all bound to the law of supply and demand. The packer has to furnish to the trade the kind of products the consumer demands. This demand on the part of the consumers for the packers' goods is passed by the packer to the producer in the form of the purchases made by the packer. The packer is the farmer's cus-

tomer. He is not only the farmer's biggest customer so far as livestock is concerned but his logical and best customer as well. The packer has to develop the good-will in order to dispose of his product. The packer wants to be and has to be on a good-will basis with his customers, and a great deal of pains is taken by the packer in an attempt to establish a friendly relation with his customers through the medium of dependable service, efficient distribution and quality products. Since the packer is the farmer's best customer why not try to satisfy the packer with what he wants, not so much in price as in quality. In other words, both must speak the same language.

The question arises in your minds immediately as to what does the packer want, and I am afraid that too often you think the packer's demands are set arbitrarily. I know you have all heard men say that when they have big cattle to sell the packer wants them little, when they have them little he wants them big, and so on. In the first place, what the packer wants depends entirely upon what he can sell. In other words, the packer's cost sheet determines what he wants and price discriminations.

I have with me a copy of a packer's cost sheet covering a lot of cattle recently purchased and slaughtered by Corkran, Hill and Company, which I will show you and explain a little later.

As a result of the changes that have taken place in the beef industry within recent years the packer's definition of "quality"—(and it is the quality product that he can always sell)—shows yearlings and baby beef to be the most consistent winners. Cattle slaughtered last year amounted to more than ten million head, which is one of the largest slaughters on record and the quality was good. The good beef produced in 1926 has stimulated a taste for good beef and I am very much in sympathy with the Better Beef Movement which is now under way.

The grading of products has done wonders for such products as oranges, grape fruit and the like. Why should we not identify quality in beef? I am in favor of placing a grade by a Government man qualified to do so on high quality beef

so as to make possible the recognition by the consuming public of quality beef, the same as Government inspected meats are now recognized. This will also eliminate the possibility of unscrupulous dealers passing low quality beef on to unsuspecting and unknowing consumers at prices which should purchase the genuine product.

The purchase by the railroads of high quality yearlings is the biggest advertisement the beef business has received as yet, for it is identifying quality in beef and making quality available to those who like to have it and are willing to pay for it. Let's follow up the demand for good beef which has been stimulated by the good beef produced in 1926 and the advertising good beef has received by the railroads with an organized merchandizing plan. It will be to the mutual benefit to all concerned in the beef industry.

I have at hand figures from the purchase and slaughter of cattle from the International Livestock Show held last December which show how young beef wins for the packer. A load of very fancy heavy cattle weighing 1,600 pounds were purchased at $11.25 and dressed 67%, a very good dressing percentage. It was, however, next to impossible to move this beef even though it was of exceptionally high quality in finish and the entire carload sold at a loss. At the same sale of show cattle a load of yearlings was purchased at $18.00 per hundredweight and yielded 63% and sold at a profit. The sign of the times shows that heavy cattle are not wanted in the numbers that they were even a few years ago. The yearling evidentally is here to stay.

At least part of the answer of the producer's problem is good, young cattle. The demand for heavy cattle amounts to only about 15 to 20% of the total demand. Light cattle make up the bulk of the remainder. Therefore, the packer who has light beef on hand has 85 chances to sell it to 15 chances of selling heavy cattle. This demand is passed on by the packer to the producer in the form of the type of cattle he buys and the price premium. Do not be misled however, when heavy cattle sell at a premium for as you all know when supply is less than demand that supply on hand will be sold at good prices due to increased competition among the 15 to 20 per cent. who use and want the heavy beef.

The packer's success comes from volume. He cannot make money by cutting down operations. The packer is not selfish when he demands yearling cattle. He can kill and sell five yearlings to two heavies.

In addition to points already mentioned, yearling cattle give the producer an advantage by giving a quicker turn-over, eliminating long time calculations and predictions and young cattle make more efficient use of the feed consumed by putting on a hundred pounds of gain cheaper on the average than older cattle.

A problem confronting Maryland beef producers is the supply of cattle for feeding purposes. Maryland does not have grazing land to produce feeders, but neighboring states of West Virginia and Virginia do have grazing land and are producing large numbers of good quality feeder cattle, very few of which find their way to Maryland feed lots and Maryland markets. It is a crime to have West Virginia cattle go to Ohio. Ohio cattle do not come to Baltimore as a rule, but when they do they top the market. If Ohio feeders can purchase Virginia and West Virginia feeders and make money on them, why can't the Maryland feeders use these good quality cattle also?

There is possibly room for cooperation among Maryland feeders and Virginia and West Virginia feeder producers that should work to the benefit of all concerned. I would like, at this point, however, to make distinction between co-operation and co-operatives in the light of some recent experiences. Co-operation is a fine thing and in many cases highly desirable. However, not all co-operatives can be spoken of so favorably. The success of the co-operative depends upon the contribution of the individuals. The reputation made by the co-operative is therefore set by the poorest member. A chain is no stronger than its weakest link. Also, when you depend upon one man and he goes wrong, everybody in the community suffers. Packers want livestock that figures out well. If John Smith's cattle are good the packer will buy his cattle again, but if John Smith has poor figuring cattle, because they are low in quality or are abnormally filled they are going to be on the look-out for his stuff the next time and will not buy it unless it can be bought their way. Every producer has an

opportunity to build his own reputation. Think for yourself, don't let others drag your reputation down. Why should you have your good cattle carry the burden of somebody else's poor figuring stuff?

As mentioned previously, the packer's success depends upon volume. He must have stock and must keep his plant in operation. The local packer will pay the price for livestock and would rather buy cattle or other stock on the Baltimore market than in the West, but with rare exception he cannot get Western quality on Eastern markets.

At this point a packer's cost sheet was displayed showing how a load of cattle purchased in Chicago figured for a local packing concern. A number of very instructive points were brought out by the explanation of this sheet by Mr. Peppler. They were a load of light cattle and dressed close to 60%. Light cattle on the Baltimore market dress 52 to 53%. This cost sheet showed that one per cent. in dressing percentages means in this case about twenty cents per hundredweight increase value on the hoof. It was shown that the packer has to keep beef prices down in order to keep fresh beef moving. He tries to keep this down by crediting all edible specialities and etc., to the beef price.

ROUND TABLE CONFERENCE

Following Mr. Peppler's address, Mr. E. P. Cohill, former president of the Maryland Farm Bureau Federation, spoke on the service that farmers' organizations sponsored by the Farm Bureau have been able to render the farmer. He cited instances of the co-operative shipping of turkeys and alfalfa seed from Utah, mentioning that before the farmers' organizations began to operate, dealers made no discrimination as to quality in making their purchases and there was a wide spread between the prices paid to the Utah producer of these products and the consumer. In the case of alfalfa seed the price in Utah was 17 cents. The freight was 2½ cents a pound, but Baltimore dealers wanted 27 cents. The seed was sold on a two-cent margin to half a dozen dealers before it reached the Maryland farmers. It took the Farm Bureau to eliminate this waste. They showed dealers the way, and when

dealers perform the service in that way the farmers' organizations will go out of business.

Referring to beef cattle experiences he mentioned that dealers in Baltimore always paid him the same price regardless of quality. He mentioned that packers have not allowed farmers to get at them directly. The packer and the dealer have not been able to penalize the producer for poor stuff and hold his trade while paying better prices for good stuff. The farmers' organizations have been able to do this.

Mr. Cohill also stated that when on the Omaha market trying to buy feeder cattle direct from producers, he found that producers were unwilling to sell to him stating for their reason that if they sold directly to him today they could not sell to anybody else on the market tomorrow.

Following Mr. Cohill's remarks, a round table discussion was held on the subject, "How I Feed Cattle and Why I Like It."

Mr. Samuel Ausherman, of Frederick County, spoke regarding his cattle feeding operations. He always buys as cheaply as he can and feeds as cheaply as he can. Last year he bought Aberdeen-Angus, the finest he ever fed, but didn't make as much on them as on common cattle, due to initial cost. He bought cheaper cattle this year, they were not as nice but sold for the same amount and made more money. A year ago he put in 600 pound cattle. He said, "I have been fooling cattle by feeding clover straw and selling the seed. I use a silo and feed cottonseed meal. Many say I keep cattle too long to make money. The only feed I bought was cottonseed meal. I bought cattle at six cents and sold at $8.65. I never lost on feeding and have had more than manure for profit."

Mr. Leo Cohill, of Washington County, said regarding his feeding operations, "If I can't get rid of cattle in ninety days I don't want them. I can't get any competition when I am ready to sell and get the same for poor as for good cattle. I can't see how to feed high priced hay to cattle. I buy cottonseed meal at $30.00 and sell alfalfa hay at $30.00. I have a silo and I use ensilage. I bought heavy cattle in the West and made one cent advance in sixty days. The selling is a very

important end of the game. I keep books and know what I am doing."

Mr. Hobart Hutton, Montgomery County, said, "I buy in the fall and rough through the winter with very little grain. Put on grass and when new corn comes, feed it. Sell to local dealers who won't pay the price for quality, for they claim if they pay me ten cents they will have to pay ten cents to everybody and won't be able to buy more cattle.

"My cattle come from north-western West Virginia. If you come to the Baltimore Yards and find out anything on the yards that is not contradicted in five minutes, you will have much more success in getting information than I have had. Put 523 pounds on my cattle, fed fourteen months."

Mr. E. B. Shriver, Frederick County, stated, "I am a great baby beef man. My boys have fed baby beeves in a Baby Beef Club. I bought cattle from Lancaster at $8.35, sold for eleven cents. I had a commission dealer pick out two or three head from feeder lots on the Lancaster market to make up my load of cattle. Buy on the average during the middle of November, sell in June. Last year cattle cost 6¼ cents, sold for nine, weighed on the farm. All my good cattle come to the Baltimore market. I like good cattle."

Mr. Charles Cockey, Jr., of Baltimore County, said: "I feed one car per year but would like to feed more. I buy heavy cattle in as good flesh as possible; feed all they will eat; and keep a strict account of everything. I estimate labor and charge grain by actual weight. At present I have twenty-four cattle, starting November seventh. At first I fed a barrel of corn per day, and am now up to thirty pounds per head per day. I aim to making as short a feeding period as possible. I have topped the market many times on the day of sale, and generally get more than my neighbors who have light cattle."

At this point Mr. Peppler stated that all butchers and packers are continually on the look-out for Mr. Cockey's cattle, because Mr. Cockey always makes his cattle good and they do well for whoever buys them. He does not give them an abnormal fill, but sells them as they are. He has made a reputation for himself, and when his cattle come on the market buyers know they will be good and are not skeptical.

They can always afford to pay him top prices for his cattle. Any feeder can make a similar reputation and have as active competition for his cattle when they are sold if he will take the pains and effort and use the business judgment that Mr. Cockey does.

Mr. Cockey then continued, "I am surprised at the way feeders in Maryland market their cattle. The local buyers go on the yards with the stuff purchased from the farmers. Why don't the farmers put their cattle on the yards where the buyers are? The local buyer puts cattle on the market and sells them for what they are. Why don't farmers do it? But follow your cattle to the market. If you don't treat your customers right you won't have them long. Commission men will treat you right if you are interested in your business. If you fill your cattle excessively you will get away with it, maybe, the first time, but you fool only yourself. Buyers won't be skeptical if you give them a good deal.

"There are about 36 dealers in Baltimore County, all doing fairly well, making, say, $2,000 a year. They are taking stuff to the market and paying the same commission as the farmer has to pay, and they make money. Why don't the farmers do it themselves and put this 36 times $2,000 in their own pockets?

"A local dealer bid on a 400-pound sow at my place. He offered $20.00 at start; before he left, $30.00; and, finally, $40.00. I agreed to call him in the evening. I got in touch with the yards, found the price on sows and figured I would sell her at the yards. I got $53.00 and a few cents after paying a commission and marketing charges at the yards."

Mr. Calvin Brady, of Montgomery County, said:—"Type and quality of steer are half the bargain. Feed liberally if you have the feed. If necessary to stint, do it before the pasture season. I believe in variety of feed. I feed black West Virginia cattle. I like corn and cottonseed meal. My cattle netted me $200.00."

Adjournment followed the round table discussions.

REPORT

OF

Boys' and Girls' 4-H Club Conference

Wednesday, January 5, 1927

Baltimore, Maryland

Owing to an automobile breakdown, Chairman T. Roy Brooks was delayed and Mr. John Joesting of Harford County was elected temporary Chairman of the 4-H Club Conference.

Mr. Robert G. Foster of the U. S. Department of Agriculture opened the discussions as follows:

THE NEED FOR RURAL LEADERSHIP AND HOW CLUB WORK IS HELPING TO DEVELOP THIS NEED

Mr. Chairman and Local Leaders:

It is, indeed, a pleasure to be here this morning and discuss with you for a little while the important topic of rural leadership. If I were to give myself a subject, I would call it "The Need for Rural Leadership and how Club Work is helping to meet this need."

There are, in the United States, more than 7,000,000 farm boys and girls between ten and twenty years of age. Many of these young people are in a quandary as to what they will do later in life. The public school system is attempting to give them the tools and techniques of learning which will aid in equipping them in an educational way. Many other organizations, including 4-H club work, are attempting to provide these young people with activities based upon their experiences at home and on the farm which will make more vital the school work which they are doing and be a contributing factor in the development of better homes, more profitable farms and more wholesome community life in the localities where they

live. If we were to line up the vast army of young people who are engaged in the 4-H club movement so that they stood in a straight line, they would extend a distance of more than 400 miles. If we were to march them by so that we could see them, those from Oregon, Florida, Texas, New England, Iowa, and all of the 48 States, it would take four days, seven hours and twenty-four minutes for them to pass along, and, then, after having had them march by, if we could pile them all together on a big scale we would have a mass of more than 60,000,000 pounds of raw material out of which the homes, the farms, and farm communities of the future are to be made. It is out of this mass of farm youth, who are growing up in the country, from which the farmers of tomorrow and the farm home makers of tomorrow are to come. More than one-half million of these young people are today engaged in 4-H club work and you are a part of a line of local leaders who, if stood in a row, would extend a distance of 38 miles—more than 50,000 of them in all. You are a part of this army of men and women who are giving of your time and of your service in the leadership of the cream of the young people growing up in the country. What are the needs for leadership and what are the opportunities that will be open to these young people as they grow into young manhood and young womanhood?

Educationally

In the field of education there are needed more and better teachers of rural schools, men and women who have lived in the country, who know the philosophy of country life, who know its surroundings and environment, and who know the home life and community life of the boys and girls whom they are teaching. Many girls raised in the country become teachers before they marry and have homes of their own. In rural communities efforts should be made to attract more of these young people to the rural school as a place to teach, and incentives should be provided which will induce them to stay for longer periods of time. In the ministry, in Sunday-school work and religious education there is also needed a type of leadership that is familiar with the farm community and its problems. There is an opportunity here for young people interested in this side of life to prepare themselves to go back

into the open country and be of real service in developing the spiritual side of the country life.

Vocationally and economically one of the biggest problems which young people face is that of adjusting themselves to a vocation in life. There are needed in this field men and women who know country life and farm young people, with the ability to guide them in making this adjustment. For others familiar with farm problems and interested in the fields of taxation and transportation, there are excellent opportunities.

Socially much is needed in the way of leadership along lines of recreation and other community social activities, which must of necessity many times come from those living within the community rather than from paid professional leaders. There is also the opportunity for young people in the country to specialize in some phase of recreational directorship and go back into farm communities or into county work of some sort and aid in the development of this phase of country life.

There is a need also for farmers and farm home makers in the country. Success on the farm and in the farm home depends not entirely upon the kind of live stock and crops that are produced, but to some degree upon the accomplishments and attainments of those who are responsible for the production of these crops and the raising of fine live stock. Farm boys and girls today have a better opportunity than they have had since 1930 to go into farming as a life work and you leaders have the opportunity of helping to guide them and helping to show them the true situation with regard to agriculture.

It must be recognized that farm communities inevitably must continually provide their own leadership in community affairs. There is a shifting of the population; there is the continual migration of young people to the cities and other parts of the country which means, as they grow up and accept leadership and move on to other places, that someone else must be trained to take hold where they left off. Due to sparsity of population, it is impossible to hire leaders in music, art, literature, recreation and other phases of community activities so that we must look within the community for those who have an aptitude along these lines and encourage them

to give some of their service in leadership. The self-development that comes for leadership of this kind is an asset, no matter what one may do later in life.

How Club Work is Meeting This Need

It has been pointed out that in fields of education, vocation, social and commercial life more and better leaders are needed in farm communities. May we now consider a few ways in which the club movement is helping to develop leadership in the country.

Last year, through 4-H club work, more than 18,000 high-grade and pure-bred dairy cattle; 6,000 beef cattle; 48,000 swine; 12,000 sheep; 800,000 fowls and 11,000 miscellaneous animals were raised by boys and girls in club work. They produced more than 70,000 acres of crops from high-grade seed; 4,000 acres of garden truck and small fruits and more than 6,000 of them were engaged in the conduct of farm management demonstrations. These activities indicate that the boys and girls are contributing materially to the improvement of agriculture through the knowledge and skill they are acquiring and the actual conduct of economically sound and financially successful agricultural projects.

In home work, girls preserved more than two and one-half million jars of food products, made more than 300,000 garments and engaged in the production of 60,000 miscellaneous types of activities. In community activities, more than 15,000 demonstration teams told thousands of people about better practices in agriculture and home economics; several thousand judging teams were trained; many thousands of local exhibits were put on; hundreds of achievement programs, county rallies, tours, county camps and State short courses were conducted at which members and leaders demonstrated and learned more about agriculture, home making and wholesome community life. In the field of leadership, hundreds of former club members are now teachers; leaders in farm organizations; farming for themselves; in business; in politics and government activities of various kinds; in research and many related fields, which directly or indirectly contribute to the welfare of agriculture.

In your own State the accomplishments of such club members as Stanley Sutton, Gladys Bull and others is indicative of one way in which club work is helping to meet the problem of providing more rural leaders.

When I think of the activities of young people like this, I am always reminded of a statement regarding them which I heard at a meeting one time. A man asked that we think of the power of a million boys and girls like these and the effect of their efforts and their lives upon the homes and communities in which they live. He went on to point out that while Methuselah lived 960 and 9 years and then died, that is all that can be found about him. The man who lived the longest has the least recorded about his accomplishments. Many of these young people can show more of real accomplishment and service to their communities than can be found in the Bible or in any other source about Methuselah. Truly, the power of a million young people with records of accomplishment behind them, like those about whom we have been talking, makes one feel optimistic in regard to the future of country life in America. I firmly believe that in twenty-five years many of the men and women teaching in our agricultural colleges, doing research, heading our extension work, teaching in rural schools, leading in farm organization activities, farming and managing farm homes in many parts of the country will be those young people who are today engaged in 4-H Club work of whom you are the local leaders—the most important group in the whole organization. The vision, enthusiasm, and energy of youth, coupled with the judgment, wisdom and guidance of age means progress. May I conclude by a brief quotation from Webster in which he says:

"If we work upon marble, it will perish; if we work upon brass, time will deface it; if we rear temples, they will crumble into dust, but if we work upon immortal souls, if we imbue them with principles, with a fear of God and the love of fellow men, we engrave on those tablets something which brightens all eternity."

Mr. Brooks arrived following Mr. Foster's talk, assumed the chair and as a Local 4-H Club Leader gave a helpful talk on the need of expanding the work. Noting the applause from adjoining rooms, Mr. Brooks wondered why this meet-

ing attracted fewer people than others round about. "As the 4-H group is concerned with the most precious product of our farms, as club work is the "hot bed" in which to grow and train those who will carry on coöperative enterprises and who will determine our future citizenship, our meeting," said he, "is certainly not attended as it should be."

Speaking of the partnership being established by club work between fathers and sons he cited typical interesting cases. He mentioned one case where lack of interest on the part of a father had resulted in two sons leaving a fine farm. He pointed out that the right thinking parents induce their children to become good 4-H club members and added; "Good 4-H members make better parents."

Mr. Brooks, who leads a club of young men, urged the need of holding older boys and girls in the work and of leading them to become active and forceful members of the Farm Bureau, Grange, Home and School associations: "Club work leading them into larger service in their communities."

In her brief, but helpful talk Miss Dorothy Emerson, Girls' Club Agent, stressed the need of broader vision of leadership. "super-vision," said she, "is the challenge to both paid and voluntary leaders of farm youth." Perhaps the finest contribution made at the conference was Miss Emerson's remark that, "we will find no difficulty in interesting parents and securing their coöperation if we are genuinely interested in their boys and girls and are conscienciously endeavoring to help them in the ways 4-H club work provides for their growth and their happiness."

"Agricultural club work needs the same dedication of time and interest by earnest people as Sunday-school classes, Boys Scouts and other youth movements are finding," said E. G. Jenkins, State Boys' Club Agent. "We need an attitude on the part of the rural people which will inspire every Extension Agent to give the best he has in time and effort and interest to farm youth. We need to realize the great place 4-H club work may take and should take in this matter of citizenship building, to the end that rural farm and home practices and rural social life shall be improved; country boys and girls shall become efficient farmers and home makers and that

more effective rural leaders may be found among those who dwell in the country.''

Mrs. Linwood Sutton told how she had been inspired by a talk given by Miss Emerson at this group meeting the year before, to go home and organize a girls' club and in an interesting manner reported the splendid work accomplished by this club.

Helpful talks were made by Edwin Preston, Harford County, and others. Several county agents and leaders including Mrs. J. W. Jones, chairman Home and Community Committee, discussed club needs in the Round Table discussion which followed the addresses.

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